FIRST CLASS

PERIPHERALS

37 to 25

SIDER D2

INSTALLATION / USER GUIDE

SIDER D2

Subsystems for the Apple II Supporting DOS, ProDOS, CP/M, Pascal

Installation / Users Guide

Part Number 106472

REVISION C

PREFACE

The following manual contains instructions for installing the FIRST CLASS PERIPHERALS SIDER Sider D2 hard drive on the APPLE //e and APPLE IIGS. The instructions in the manual assume you have a working knowledge of the APPLE system.

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1. OVERVIEW AND BACKGROUND INFORMATION

This guide accompanies the First Class Peripherals Sider fixed disk subsystem. It provides instructions to help you install the Sider D2 on your Apple //e or your Apple IIGS. There is also information about the Siderware utilities and how to operate them. We strongly recommend taking the time to read through the manual to familiarize yourself with the steps involved in setting the drive up.

The first part of this manual covers some background information which we feel is helpful in understanding the features and capability of the Sider D2. It will also aid you in making the setup and partitioning decisions later in this manual.

> **IMPORTANT INFORMATION:** The Sider D2 is formatted and partitioned by First Class Peripherals before it is shipped from the factory. The SIder should turn on and be operative once the hardware is properly installed. You should read the following section to better understand the operation of the Sider and determine if you need to change the default partition structure.

1.1 SIDER OVERVIEW

The Sider is designed for use with the Apple //e or the Apple IIGS computer. The Sider D2 adds approximately 20 Megabytes or 20 million characters of disk storage to your Apple computer.

1.1.1 Utility Program Overview

The Siderware utility programs come on three diskettes. These diskettes are flippies; this means there is information stored on both sides. The following describes the contents of each of the diskettes.

Disk 1

Side 1 contains the Siderware Installation Utilities, which prepares the fixed disk to accept data.

Side 2 - contains the Siderware Support Utilities for Apple DOS 3.3.

Disk 2

Side 1 - contains the Siderware Support Utilities for CP/M.

Side 2 - contains the Support Utilities for Pascal.

Disk 3

Side 1 - contains the Backup/Restore Utility.

Side 2 - contains the Support Utilities for ProDOS.

NOTE: The different sides of these disks are formatted with the operating systems they contain utilities for. Trying to list the catalog or directory of a disk through the use of the wrong operating system will cause an error message to appear.

The Sider D2 can concurrently support as many as four different operating systems. This gives you the ability to arrange your storage environment so you can maximize the efficiency of your subsystem. The following is a list of the operating systems supported by the Sider D2:

DOS

DOS Apple DOS 3.3

Diversi-DOS 4-C

David-DOS II.2

Pronto-DOS

ProDOS

Apple ProDOS All versions

CP/M

CP/M Microsoft SoftCard 2.23 (60K)

Microsoft SoftCard II 2.28B

Microsoft Premium SoftCard 2.26B

PCPI APPLI-CARD 1.5, 1.6, and 2.0

Applied Engineering Z-card 5.1, 5.1.1

PASCAL

Apple Pascal 1.1 (64K)

1.2 (64K and 128K)

1.3 (64K and 128K)

The Sider also supports an option called daisy-chaining. Daisy-chaining means you can connect two Siders drives and/or the

Sider tape to your Apple computer all from the same host interface card.

1.1.2 Concepts And Background

This section of the manual addresses many of the commonly asked questions about the Sider. Background information on how it works with operating systems, what hard disk storage can offer, and other areas of interest are covered.

1.1.3 About The Sider

The Sider can store 20 million characters of information. This is roughly equivalent to 135 floppy diskettes. Though the technology involved in creating a hard drives is complex, how mass storage can help you is a more easily defined concept.

The fundamental element of information in the microcomputer environment is the "bit". An operating system, something like morse code, is used to organized these 'bits' into groups of eight. Eight bits create a "byte", the equivalent of one data character, such as a letter, number, or symbol.

When you operate your computer with a hard disk, bytes are transferred to and from the storage areas of the fixed disk. The storage area is arranged in what might be called a circular matrix. Inside the hard drive is one or more metal disks called platters. These platters are coated with a magnetic flux. A series of concentric circles called 'tracks' are magnetically encoded on the usable area of each platter. These circles are then divided into pie shaped wedges to form sectors and cylinders. The operating system numbers each of these sectors and cylinders, and uses that numbering sequence to develop an elaborate 'mail box' system. Since very few files or program could fit into a single sector (mail box) a file allocation table is created to assign groups of sectors to be used as the storage area for your files.

1.1.4 Operating Systems

An operating system is the link between the hardware of your computer and software programs you intend on using. It manages all the devices available to the main processor of your computer (CPU). For example, it interprets information coming

from the keyboard, then informs the screen circuitry to display the information and/or the drive to retrieve a file or send characters to the printers. Another example is if you are using a word processing program and you enter the command to retrieve a document from storage, the word processing software makes a request to the operating system for the specific data. The operating system translates the request into the computer's language and coordinates the various components of the computer system that will respond to the request.

It handles hundreds of other types of instructions too. One of the challenges First Class Peripherals overcame was how to have four operating systems on a single drive. This involved having four separate file allocation tables, four partition structures, and a manager to move between each operating system.

1.1.5 Formatting Information

Operating systems on the Sider drive use a formatting technique known as "partitions". Partitions serve two purposes: First they allow more then one operating system to reside on a single fixed disk. Second, partitions divide the available storage area into smaller units, this increases the speed in which the computer can access information on the Sider. Once the partitions are defined, you can then install the operating system software into each. The storage area within a particular operating systems partition can also be divided into even smaller areas called volumes or units.

Instructions for settings up the partitions and installing the operating systems of your choice can be found in the software setup and installation sections of this manual.

> **NOTE**: It is important to understand that First Class Peripherals provides the tools needed to create partitions compatible with various operating systems. First Class Peripherals does not provide the operating systems themselves. These operating systems are available through your dealer. (Apple's DOS 3.3 is provided as a part of Siderware)

The illustration below shows how the Sider's storage area can be divided into various partitions of different sizes. When the Sider software is first run, it assumes you will divide the Sider's storage area equally between the four operating systems. This will probably not meet your needs so a partitioning utility is provided to customize the partition sizes to reflect your needs.

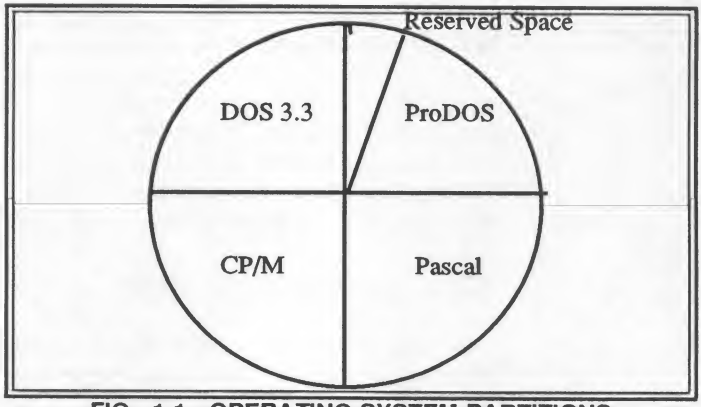

FIG. 1-1 OPERATING SYSTEM PARTITIONS

You will also have the opportunity to define the amount of disk space that the volumes or units will occupy within each of the active partitions.

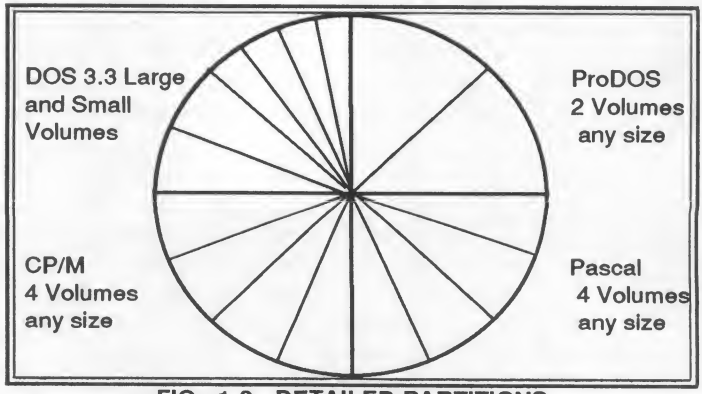

FIG. 1-2 DETAILED PARTITIONS

1.1.6 Choosing The Right Operating System

Which operating systems you need will depend on the application programs you will be running. First Class Peripherals can accommodate all the popular operating systems for the Apple II computers.

Installing Apple DOS 3.3 on your Sider is done automatically during the setup process. If you are not using the Sider for DOS 3.3 only the RESERVED SPACE area and one small DOS 3.3 volume of the drive will be used for the DOS. During the final steps of the installation sequence, the Siderware Installation Utilities will automatically transfer DOS 3.3, as well as the Siderware Support Utilities for DOS 3.3, to the first volume in the DOS partition on your Sider.

Apple ProDOS, CP/M, and Apple Pascal operating systems have slightly more evolved installation procedures, but can be installed in a relatively short period of time. First Class Peripherals provides Support Utilities which allow each of these operating systems to work efficiently on the Sider as well as instructions to guide you through the installation process.

NOTES

2. HARDWARE INSTALLATION

This section of this manual is written to guide you through a successful hardware installation of the Sider D2 subsystem on your Apple //e or Apple IIGS. The Sider is shipped pre-partitioned, and should be ready to use once properly set up. Most instructions are identical for both the //e or IIGS. Where there are differences, there will be special sections detailing proper procedures.

To install your new subsystem, you'll find the following helpful:

- A quarter-inch, HEX nut driver.
- A pair of needle nose pliers.
- Your Apple Corporation, OWNER'S GUIDE manual.

2.1 INVENTORY CHECK LIST

First Class Peripherals makes every effort to make the installation process as simple as possible. Having the complete package is a big part of that goal. Please inspect the materials in the Sider's shipping carton to assure you have received all the required items.

1- Sider D2 subsystem.
1- host adapter interface card.
1- flat ribbon cable.
1- dual 25 pin data cable.
1- power cord.
1- owner's manuals
1- Terminator.
3 program diskettes.

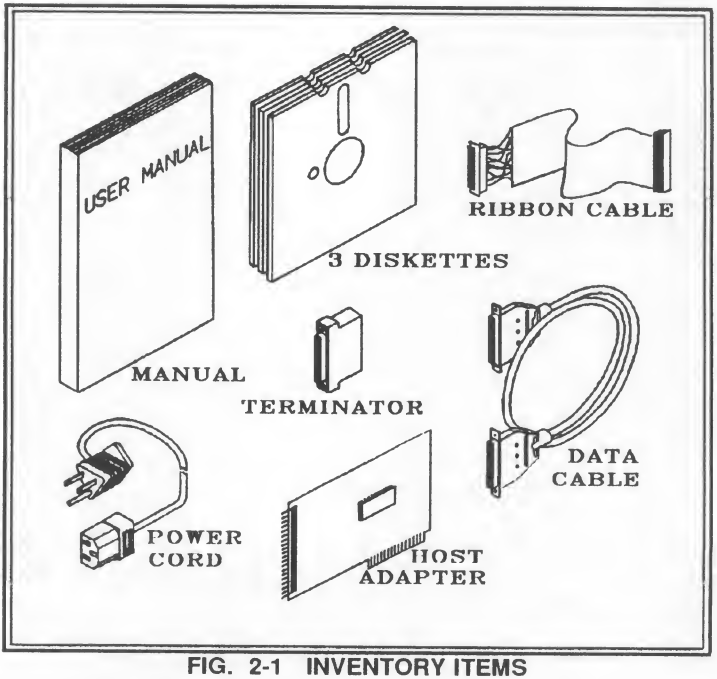

FIG. 2-1 INVENTORY ITEMS

2.2 INSTALLATION PROCEDURE

Before proceeding, make sure you have turned your computer's power off as well as the power to your other peripherals. Follow each step in order.

1. Locate the SIDER's host adapter and inspect it for proper configuration as shown below. The host adapter jumpers W1 and W2 should be in an open position or removed. To set in an open position, each plastic jumper should connect with only one of the two pins. W1 and W2 should never be in the closed position or connecting both pins if the Sider has a warning label on the rear panel. For use with other models of the Sider host adapter see the HARDWARE APPENDIX.

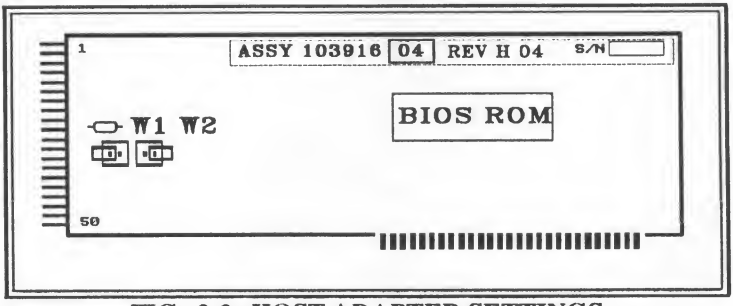

FIG. 2-2 HOST ADAPTER SETTINGS

NOTE: If you are using your Sider in conjunction with older Sider products, please see HARDWARE APPENDIX for important host adapter configuration information concerning the Apple's power structure!

2. With the host adapter properly configured, locate the Sider's flat ribbon cable which has a 50 pin connector on one end and a 25 pin D-SUB connecter on the other. (This cable is normally rainbow colored).

3. Connect the 50 pin side of the ribbon cable to the front of the host adapter.

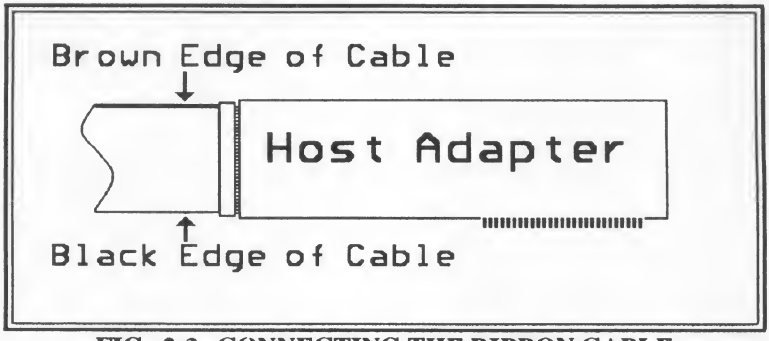

FIG. 2-3 CONNECTING THE RIBBON CABLE

NOTE: Before connecting the ribbon cable to the host adapter, check that the cable is oriented properly. Pin 1 of the board must be mated with pin 1 of the cable. Pin 1 of the board is located at the top of the board. Pin 1 of the cable will be colored red on a gray cable or colored brown on the rainbow colored cable.

IMPORTANT! Before installing the Sider host adapter or any expansion card in the Apple make certain ALL POWER IS OFF! THIS SHOULD INCLUDE BOTH THE COMPUTER AND THE SIDER.

4. Pop-out one of the pass-through port covers on the rear of the Apple. Connect the end of the ribbon cable with the 25 pin D-SUB female connector to the rear plate of the Apple. We suggest using a hex nut driver to attach the 25 pin connect with the hex nuts provided as shown in the figure below.

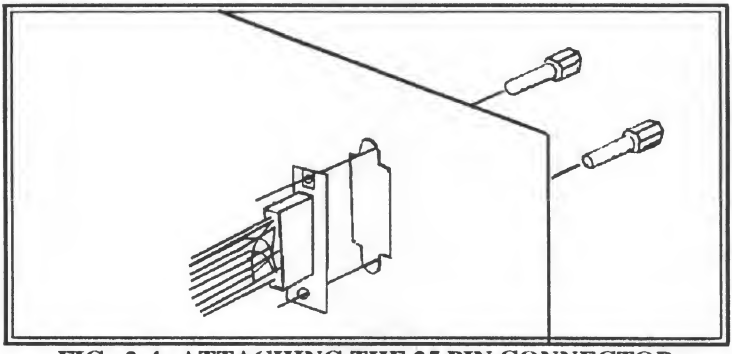

FIG. 2-4 ATTACHING THE 25 PIN CONNECTOR

5. To install the host adapter card in the Apple, identify expansion slot 7 of your computer's mother board. This is the farthest standard slot away from the power supply. We recommend this slot because it is not normally used for other expansion cards such as modems, printers, floppies etc. Using slot 7 will make the Sider the boot device on the //e. On the IIGS using slot 7 will make it the boot device with the CONTROL PANEL set to SCAN. You should NEVER use slot 3 on either machine. It is designed for video cards.

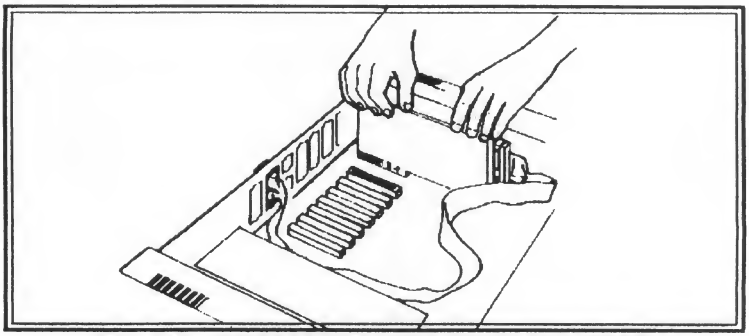

FIG. 2-5 INSTALLING THE HOST ADAPTER

NOTE: The Sider D2 is not designed to work off any of the built-in I/O ports on the Apple IIGS. You must use the host adapter supplied. In the software section of this manual, instructions for using the CONTROL PANEL to make the Sider bootable will be provided.

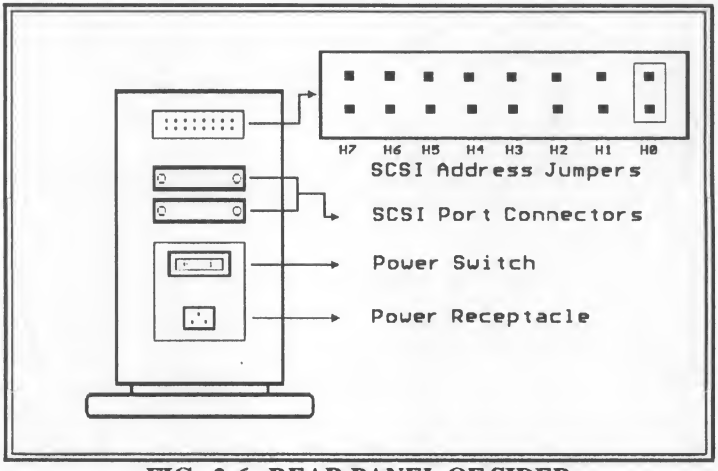

FIG. 2-6 REAR PANEL OF SIDER

6. Check the device address window on the top rear of the Sider D2 to assure the jumper is positioned over the H0 position as shown in figure 11 and figure 12. If it is not, use the needle nose pliers to move the jumper to the proper position.

7. With the host adapter installed, next attach the Sider to the Apple. Place the Sider next to the Apple with at least 3 inches of clearance for top and sides to allow proper ventilation.

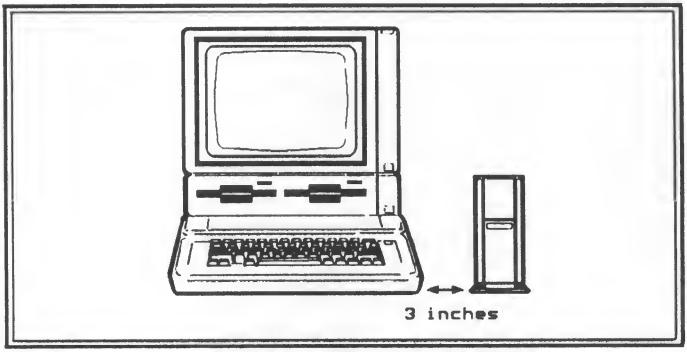

FIG. 2-7 PLACING THE SIDER

8. Attach one end of the data I/O cable to the 25 pin connecter you installed on the rear of the computer. Attach the other end to either one of the two 25 pin connectors on the rear of the Sider.

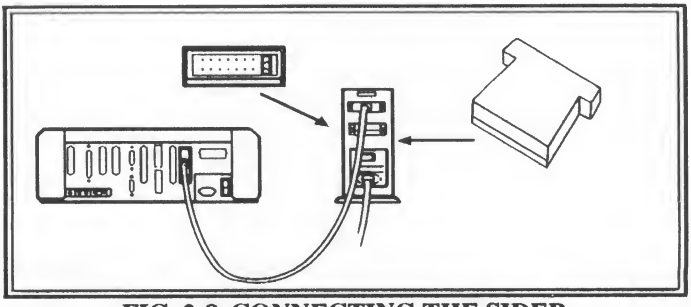

FIG. 2-8 CONNECTING THE SIDER

9. Locate the Sider's terminator plug and attach it to the other of the two connectors on the rear of the Sider.

10. The last step in installing the Sider is to attach the power cord to the rear of the unit. The Sider's power switch should be in the OFF position before applying power.

The Sider can be added to your power strip or surge protector equipment. We recommend surge protecting all your computer equipment to lessen the damaging effects of irregularities in your community's power source.

NOTES

2.3 HARDWARE SUMMARY

1 - Turn off power to the computer and peripherals.

2 - Check the jumpers on the host adapter.

3 - Connect the ribbon cable to host adapter.

4 - Connect the ribbon cable to rear of computer.

5 - Insert host adapter in Apple's mother board.

6 - Check the device address jumpers.

7 - Connect data I/O cable to the rear of computer.

8 - Connect data I/O cable to the rear of Sider.

9 - Connect terminator to the rear of Sider.

10 - Insert the power cord.

Having completed the above instructions you are ready to initialize and install the software on the Sider drive.

The values of the pre-configured partitions on the Sider D2 are:

DOS-SM = 1.64MB	Vols = 12
DOS-LV = 800KB	Vols = 2
CP/M = 96KB	
ProDOS = 16MB	Blocks = 32864
Pascal = 96KB	Blocks = 192

Instructions for changing these values are found in the following chapter.

IMPORTANT OPERATING INFORMATION

The CMOS memory in the Apple IIGS is very voltage sensitive. The read and write channels of the Sider use a fraction of a volt to transmit information. This voltage can cause the Apple RESET option to partially function. The solution is to power-off the Sider when doing a RESET. You should also make certain the power is off to the Sider before adding or removing *any* cards from the Apple.

NOTES

3. SOFTWARE SETUP AND INSTALLATION

TO START: Turn on the power to your Sider hard drive. It is not necessary to turn the power to your Apple on yet.

> **NOTE:** Let the Sider run for at least 30 minutes before you proceed with the formatting and partitioning. This process will help to insure that the hard drive will be warmed up and in an optimal condition for excepting the format. This precaution will insure the data areas are formatted in such a way that during normal use, the drive's built in error handler will work most efficiently.

1. After the Sider is properly installed and warmed up, place a copy of the Siderware "Installation Utilities, Side A" diskette into floppy drive 1. Next turn on your Apple computer. Your computer will try to boot from the uniniatialized Sider. This will cause the computer to halt or hang the system.

   If no cursor appears:

   Press CONTROL and RESET at the same time to get the Applesoft prompt.

   At the prompt type: PR#6 and then press Return.

   If you get an asterisk "*":

   At the asterisk type: C600G and then press Return.

2. As Siderware diskette boots and runs, it will display a series of introductory screens. Some of these screens are informational and some require you to input information about your Sider. The following describes each.

"TAB" Key Cancels Formatting

Screen 1 A copyright notice of First Class Peripherals.

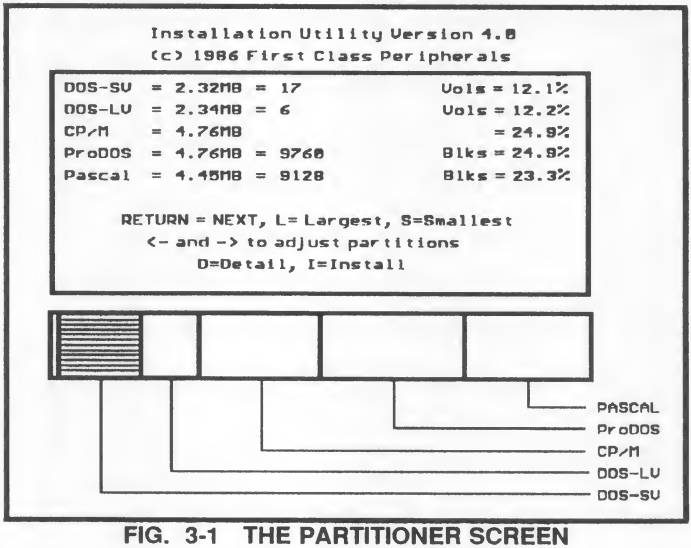
Installation Utility Version 4.8
(c) 1986 First Class Peripherals
DOS-SU = 2.32MB = 17 Vols = 12.1%
DOS-LU = 2.34MB = 6 Vols = 12.2%
CP/M = 4.76MB = 24.9%
ProDOS = 4.76MB = 9760 Blks = 24.9%
Pascal = 4.45MB = 9128 Blks = 23.3%
RETURN = NEXT, L= Largest, S=Smallest
<- and -> to adjust partitions
D=Detail, I=Install
PASCAL
ProDOS
CP/M
DOS-LU
DOS-SU

FIG. 3-1 THE PARTITIONER SCREEN

Screen 2 A message "Loading Integer Basic into memory" will appear on your screen momentarily.

Screen 3 Some introductory remarks; press [return] to continue.

Screen 4 The continuation of the introductory screen; press [return] to continue.

Screen 5 The program will prompt you to indicate if you are daisy chaining two Siders and, if so, which one you want the program to format.

You will prompted to input which drive to pratition. If you only have one drive enter the number [1] at the prompt.

If you have two drives select the [1] or [2] depending on which you want to partition and format. Selecting the wrong one will erase the data on the existing drive. Check the Hardware Installation Section for address jumper settings to double check your selection.

Screen 6 Next enter the capacity of the Sider you are using. For the Sider D2 enter a [2].

Screen 7 The next screen is called the Partitioner and is explained in the next section.PARTITIONING THE SIDER.

The Partitioner screen is used to customize the default partition definitions. Use this screen to minimize the partitions of operating systems you are not using and allocate space for those you intend to use.

The following Partitioning screen will appear.

Regardless of how many operating systems you plan to install, the Sider is preconfigured to set aside space for four partitions. Using the Partitioning screen, you can choose how much of the Sider's disk space you want to allocate for each of the four partitions.

> **NOTE:** The Partitioner only allocates space to be used by an operating system. If you do not own copies of CP/M, Pascal or ProDOS and do not intend to purchase them, you should make the partitions for these operating systems as small as possible. FCP only provides DOS 3.3. Apple supplies ProDOS with its' newer computers. All others are purchased separately from your dealer.

3.1 USING THE PARTITIONING SCREEN

The Partitioning screen is graphically oriented. There are two main portions of the screen: one is the numeric table portion and the other is rectangle representing the total space available on the Sider. You will use the arrow keys to select an operating system and then increase or decrease its allocation. You should know you are free to try any number of combinations of sizes since initially all changes are done in memory and not to the drive.

Use the RETURN key or up/down arrow keys to move the highlighter to the operating system that you want to partition.

Then use the right/left arrow keys to increase or decrease the size of the partition. As you change the size of the partitions in the rectangle, the numeric information at the top of the screen will reflect your changes in numeric terms.

RIGHT-HANDRULE

It is important to understand the "Right-Hand Rule" when you define the Sider's partitions: Only the right-hand boundary of each partition moves when you adjust the partition's size.

For example, if you expand the CP/M partition, notice how its right-hand boundary moves to the right, diminishing the size of the ProDOS partition.

This rule applies to every partition except Pascal. Because the right-hand boundary of the Pascal partition is at the end of the disk, it doesn't move. Therefore, to increase the size of the Pascal partition, you must decrease the size of the ProDOS partition.

As a short-cut, press [L] to move the right-hand boundary of the partition to its maximum limit, making the partition to its right smaller. Conversely, press [S] to move the right-hand boundary of a partition to its minimum limit, making the partition to its right larger.

If you only want to use one operating system - ProDOS, for example - adjust the other three partitions to their minimum size, allowing the maximum amount of disk space for your ProDOS operating system.

On the other hand, if you want to use two or more operating systems, decide how much disk space you want to allocate for each one, and adjust them accordingly.

The following instructions represent a sample partitioning sequence. In this case, you'll adjust the partition boundaries to maximize disk space for the ProDOS operating system.

SMALL VOL. LARGE VOL

Highlight DOS-SV and press [S] for minimum disk space.

Highlight DOS-LV and press [S] for minimum disk space.

Highlight CP/M and press [S] and minimum disk space.

Highlight ProDOS and press [L] for maximum disk space.

NOTE: With this sample partitioning sequence, the Pascal partition automatically assumes its minimum size when you assign maximum disk space to ProDOS, in keeping with the Right-Hand Rule.

After practicing with the partitioning screen, you can reset the original partition structure - approximately 25 percent of the available disk space for each partition - in the following manner: Press [control] [R] simultaneously, and the system will return you to the Sider Selection screen.

If you plan to use only DOS 3.3, notice that the Partitioning screen allows you to detail the DOS volume structure.

Apple DOS 3.3 offers a small volume (560 sectors, 17.5 tracks and 140 kilobytes), i.e. floppy size, and a large volume (1,600 sectors, 50 tracks and 400 kilobytes). You can't alter the size of these volumes. but you can choose how many volumes of each size will be in the partition.

> **NOTE:** If you install Sierra On-Line's General Manager or Stoneware's DB Master application under DOS 3.3, these applications won't function in a DOS large volume, You must allow enough DOS small volumes to meet your requirements with this application.

When you've manipulated the partition structure to your satisfaction, it's time to move on to the next step of the installation sequence. If you've elected to use only the DOS 3.3 operating system, proceed to the "Formatting and Initializing the Sider" section of this guide.

If you've elected to use CP/M, ProDOS or Pascal, proceed to "Detailing the Partitions."

3.1.1 Detailing The Partitions

Detailing is the process by which you determine the size of the volumes within each of the operating system partitions. The DOS partition allows multiple volumes of two sizes; you detailed these at the Partitioning screen.

ProDOS allows only two volumes per Sider, but they can be of any size.

> **NOTE:** Some ProDOS application programs, such as BPI Accounting and Manzanita Accounting System can use only the first volume in the ProDOS partition. They also function best if you set them up in a large ProDOS volume: at least 2 megabytes in size.

CP/M and Pascal allow four volumes each of any size. You can conserve disk space by placing all of your CP/M files - that is, command files - in Sider volumes of 2 megabytes or less, which contain smaller allocation units: 2 kilobytes. An allocation unit is the minimum block size.

You can also conserve disk space by placing your CP/M data bases in the larger Sider volumes - that is, those over 2 megabytes in size. CP/M volumes between 2 and 4 Megabytes in size will

have a 4K allocation unit. Volumes over 4 Megabytes will have an 8K allocation unit.

The Detailing screens allow you to adjust each partition's volume structure individually. For example, to execute the CP/M Detailing screen, highlight "CP/M" on the partitioning screen and press [D].

Notice the similarity between this screen and the Partitioning screen. The volumes are preconfigured to equal sizes. If you want to change the volume structure, use the [return] key to highlight the volume of your choice, and use the arrow keys to adjust its size. Then move on to the next volume. Note that again the Right-Hand Rule is in effect here.

To maximize space for single ProDOS volume, follow the sample detailing sequence below.

Highlight ProDOS and press [D] to Detail
Press [L] to make the first volume largest.

When you've detailed the CP/M volume, press [esc] to return to the Partitioning screen. Then follow the same procedures for detailing the volumes within Pascal and ProDOS, if you're using these operation systems.

In the ProDOS partition there are only two volumes. Therefore, the second volume is passive; to increase or decrease its size, you must increase or decrease the size of the first volume, in much the same manner as you adjusted the Pascal partition at the Partitioning screen.

3.1.2 Initializing The Sider

When you finish the partition and volume structures modifications, press [esc] to return to the Partitioning screen and then press [i]. The Format and Initialize screen will appear and ask you. "Do you wish to continue (Y/N)?"

This prompt is your final checkpoint: If you have any last minute changes, press [N] [return] - for NO - to exit to the Partitioning screen, where you can make additional changes to the partition structure of your Sider.

If you're ready to proceed, press [Y] [return] - for YES. After a moment, the Auto Installation program will lead you through a series of information screens that list fixed disk structure data.

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It's imperative that you record this information in the "Owner's Log" section of "Maintenance and Trouble-Shooting." If you ever have a problem with your Sider you will need this information to help reconstruct your system.

When you've recorded the information from the final screen in this sequence, press [return]. After a moment, a message will appear instructing you to "Insert First Class Peripherals DOS 3.3 Support Utility diskette into drive 1; type [GO] and press [return] when ready."

The DOS 3.3 support utilities are on the revise side of the installation diskette. If you don't follow this procedure, the system will display the following error message. "Could not find install PT#4." Until you insert the Support Utilities for DOS 3.3 diskette, the computer will continue displaying the error message.

After you type [GO] and press [return], the "Diagnostics" screen will appear. The Auto Installation program will automatically perform a series of diagnostics tests to verify the integrity of your Sider.

If any error messages appear, review the "Maintenance and Trouble-Shooting" chapter of this guide. If the trouble-shooting instructions don't help you produce a successful diagnostics series, call your dealers technical specialist.

Upon successful completion of the diagnostics sequence, the formatting sequence will begin and will take two and a half minutes for each 10 megabytes.

During the formatting sequence, the Auto Installation program searches for and circumvents any defects in the fixed disk's surface - a procedure called "sparing" - and then records the partition and volume structure that you created earlier. The system will indicate completion of the formatting sequence.

Next, the system automatically moves on to the verification sequence. Requiring 17 minutes for each 10 megabytes, the Auto Installation program reviews its work and verifies the successful formatting of the Sider. During this sequence, three and three-quarter rows of dots will appear on your screen for each 10 megabytes, indicating the progress of the verification sequence.

Upon successful completion of the verification process, the system will automatically copy the Support Utilities for DOS 3.3 onto the Sider. Then you will be prompted to insert a copy of the Backup/Restore Utility diskette into drive 1. Do so, then type [GO] and press [return]. Now the program will copy the utility to the Sider as well. Upon completion, the system will reboot into the Sider, displaying the soon to be familiar Main Menu.

3.2 SUMMARY

At this point, you've completed the Auto Installation sequence and are ready to move on to the instructions for installing your operating systems.

TURNING OFF THE DRIVE: When you get ready to turn off your Apple and Sider, it is important to PARK the Sider's READ/WRITE heads. To do this simple return to the Sider's Main Menu and select option 7 "QUIT AND PARK HEADS." This will help insure, static, vibration, shock or friction will not damage or prematurely wear out the boot tracks of your Sider. For additional information see the SUPPORT UTILITIES section of this manual.

So far, you've defined the partition structure of your Sider which will allow you to support one or more operating systems and their application programs. You've also detailed the volumes within those partitions to maximize the available disk space.

If you plan to only use Apple's DOS 3.3, the Auto Installation program has already installed the operating system for you; you're now ready to begin transferring your applications software and data files to the Sider. Instructions for use of the DOS partition are included in the first section of the "Operating System Installation" chapter.

When turning on your system, you can either apply power to all components at once or individually. With the Sider's host adapter card in Slot 7, the system will boot directly to your Sider and display the Sider's Main Menu screen.

If you've inserted the Sider's card in another slot, the system will probable boot from your floppy disk drive. To invoke the Sider's Main Menu screen, press [control] [reset] simultaneously. Then type

PR#x **[return]**

The "x" is the expansion is the number of the slot in which you've inserted the Sider's host adapter card. The command will instruct the computer to boot the Sider from that slot, and the Sider's Main Menu screen will appear.

Instructions for installing some of the popular DOS applications are included in the "Appendix II, Application Installation."

If you plan to use CP/M, ProDOS or Pascal, the following chapters offer instructions for installing these operating systems.

4. OPERATING SYSTEM INSTALLATION

The Sider supports most versions of Apple DOS, Apple ProDOS, CP/M and Apple Pascal., the four most popular operating systems available for the Apple.

DOS 3.3 is already installed on the Sider. It is installed by the installation software during the initial setup. The following sections provides instructions for using the DOS 3.3 utilities and installation instructions for the other three operating systems.

When you've completed installation of the operating systems, take a moment to read the "Summary" section of this chapter. it provides instruction regrading your other expansion cards and peripheral devices.

4.1 DOS 3.3 OPERATION

To boot into DOS on the Sider, choose option [3] from the Sider's Main Menu. When in the DOS partition, you can view the contents of any DOS volume by typing CATALOG and designating the volume number. For example, type:

CATALOG,V3 **[return]**

> **NOTE**: there are no spaces between the comma and volume identifier. Also, all commands must be entered in CAPITAL letters.

This command displays the directory contents of volume 3.

Executing Application Programs in DOS 3.3

To run an application stored in a Sider DOS volume simply type:

RUN (HELLO PROGRAM),Sx,Dx,Vx [return]

> **NOTE**: there are no spaces between the commas and the identifiers. The "x" in Sx,Dx,Vx - represent a number of an expansion slot, (i.e. Sx=the slot number, Dx= the drive number, Vx the volume number)

To run programs written in machine language, type "BRUN" instead of "RUN".

> **EXAMPLES:**
> To execute an application program written in BASIC from your floppy disk drive, type:
>
> **RUN (PROGRAM NAME),S6,D1** [return]
>
> "S6" refers to expansion slot 6, where the floppy controller card is normally inserted; and "D1" refers to the first floppy disk drive.
>
> To run an application program written in machine language from the Sider drive, type:
>
> **BRUN (PROGRAM NAME),S7,D1,V3** [return]
>
> "S7" refers to the slot the Sider host adapter is normally installed in; "D1" indicates the program is on the first Sider; "V3" indicates it is stored in volume three.

To return to the Sider's Main Menu from any DOS 3.3 volume simply type:

RUN QUIT,Sx,D1,V1 [return]

The "QUIT" program is stored on drive 1, volume 1 of the Sider drive. Normally the "Sx" will be S7 indicating slot seven as having the Sider host adapter. "Sx,D1,V1" identifiers are particularly important if you're in any Sider DOS volume other than volume 1, which is where the QUIT program is stored. The identifiers tell the computer which expansion slot you've inserted the Sider's host adapter card into (you have to fill in the "x"), and to

search drive 1, volume 1 to look for and execute the QUIT program.

In DOS 3.3 small volumes (140KB) serve the same purpose as your floppy diskettes: A more space storage area.

4.2 ProDOS INSTALLATION

First Class Peripherals supports all versions of Apple ProDOS operating system and virtually all of the popular application programs which work with ProDOS. Although First Class Peripherals provides instructions to help you install this operating system on your Sider, you'll need to supply the operating system software.

The following instructions describe the installation of ProDOS on a single Sider. For instructions on how to install ProDOS on the second drive in a daisy-chained Sider, refer to "Daisy-Chaining Siders." Likewise, for instructions on installing popular ProDOS applications programs, refer to "Appendix II, Application Installation."

Apply power to your computer and Sider. The Sider's Main Menu screen will appear. Insert a working copy of Apple's ProDOS User's Disk into floppy disk drive 1 and press [6] from the Sider's Main Menu screen. This will cause the floppy to boot and load the ProDOS operating system into your computer's memory.

4.2.1 ProDOS 16 Installation

1. Boot the Apple IIGS SYSTEM DISKETTE. Use the mouse to double click on the SYSTEM.DISK icon.

2. Use the mouse to double-click on the SYS.UTIL folder to open the folder.

3. Move the mouse to double-click on the SYSUTIL.SYSTEM icon to start the program.

4. Use the arrow keys to select the COPY FILES option. Next select the "SLOT AND DRIVE" option.

5. You will be prompted "WHERE IS YOUR SOURCE DISK?". Enter the slot and drive number of the floppy drive containing your SYSTEM disk is in. (usually slot 5, drive 1)

6. Again select the "SLOT AND DRIVE" option. When prompted "WHERE IS YOUR DESTINATION DISK?", enter the slot and drive number of the Sider drive. (usually slot 7, drive 1).

7. The screen will prompt you for which files you want to move from the source disk to the hard drive. You should select ALL. The copying will continue and the SYSTEM disk will be copied to the Sider.

> **NOTE:** If you have already installed ProSel, you will be informed that the ProDOS and BASIC.SYSTEM files are already on the hard drive. When prompted, enter yes to delete them from the Sider and copy them from your diskette.

8. When the copying is complete the screen will display a "COPYING COMPLETE" message. This indicated the procedure was successful.

9. The Sider should now will boot with ProDOS 16 each time you start.

4.2.2 GS/OS Installation

These instructions assume you currently have a version of ProDOS installed on your Sider. Apple's GS\OS is designed around a hard drive or a two floppy configuration. If you are using only one 3-1/2 drive you will be required to interchange the floppies many times.

1. From the Sider's Main Menu, select option 4 to load your current version of the ProDOS operating system into memory.

2. Select the option to load ProDOS's APPLESOFT BASIC language. Place your GS/OS SYSTEM.DISK into your first 3-1/2 inch floppy drive. (If you have a second 3-1/2 floppy

place a copy of the GS/OS SYSTEM.TOOLS diskette in it also.) With APPLESOFT BASIC loaded and your diskette(s) in the floppy drive, at the BASIC prompt type:

PR#5 **[return]**

3 PR#5 will cause the GS/OS SYSTEM.DISK to load into memory. When the desk top displays, eject the GS/OS SYSTEM.DISK and replace it with the GS/OS TOOLS diskette. (This is not necessary if you are using two floppy drives.) You will be prompted to swap the SYSTEM.DISK and the TOOLs disk as the process continues. When the TOOLS diskettes icon appears, use the mouse to point to and double click on it to open.

4 With the TOOLS folder open, use the mouse to move the arrow to and click on the INSTALLER's folder icon.

5 When opened, the installer will display a list of possible configuration options. If using only one floppy, you will be again prompted to shuffle the SYSTEM.DISK and the TOOLS disk. When loaded, a window of options will display. Use the mouse to move the scroll bar down until the 'INSTALL EVERYTHING POSSIBLE' menu item displays. Click on (highlight) this menu item.

6. Next click on the VOLUME assignment option and change the volume from /SYSTEM.DISK to /HARD1. When you have properly setup the configuration information, click on the INSTALL button to have the necessary GS/OS files copied to the Sider /HARD1 volume.

> **NOTE:** If you are using a single floppy drive system you will be prompted to frequently exchange the SYSTEM.DISK and the TOOLS diskette. This interchanging should take place at least fifteen (15) times before GS/OS is completely installed to the hard drive.

7. When the copy process completes, select QUIT to return to the GS/OS desk top. Use the CONTROL-OPEN APPLE-RESET keys to reboot the computer and Sider. The GS/OS desk top should load and the available device icon should display.

4.2.3 ProDOS 1.1.1 Installation

If you choose to simply use APPLE's ProDOS you should follow the following to install it:

1. Boot your Apple with the ProDOS USER'S DISK.

2. Select option [F] from the menu to access the FILER menu. With the FILER menu on the screen select [F] a second time to access the FILE COMMANDS option. From the FILE COMMANDS menu select [C] to COPY FILES. You are now ready to copy the ProDOS files to the Sider.

3. The COPY FILES screen will prompt you to enter pathnames for the files you want to copy to the Sider. For the source pathname, you should simply enter an equal sign.

   EXAMPLE:
   COPY PATHNAME: = **[return]**
   TO PATHNAME: /HARD1/= **[return],[return]**

   Next you will be prompted to enter the "TO PATHNAME" which refers to the volume on the Sider you want the files copied to. Enter '/HARD1/=' as shown above. If you used a volume name other than /HARD1 when you initialized the Sider, remember to substitute it for /HARD1 in the above example.

4. The files from the floppy drive will be copied to the root directory of the Sider drive. When the copying is complete press the [esc] key twice to return the program to the FILER menu.

5. Exit to APPLESOFT BASIC and when BASIC's cursor appears type:

   PR#7 **[return]**

To return you to the Sider's Main Menu. Copying ProDOS Utilities to the Sider

4.2.4 Copying ProDOS Files

First Class Peripherals supplies some utilities for ProDOS. The first step in copying them to the Sider is to boot into ProDOS by pressing [4] from the Main Menu. Once the ProDOS main menu is displayed, press [F] - to enter the FILER, press [F] - for FILE commands, and finally press [C] - to COPY files.

Insert the FCP Siderware Support Utilities for ProDOS diskette into drive 1. Copy all the files from that diskette [/SIDER/=] to [/HARD1/=]. Enter the following:

Pathname:/SIDER/= **[return]**
/To Pathname:/HARD1/= **[return] [return]**

4.2.5 Booting ProDOS Applications

To boot into ProDOS simply return to the Sider's Main Menu screen and choose option [4]. When you transfer files to and from the ProDOS partition, you'll refer to the two ProDOS volumes as /HARD1/ and /HARD2/.

To review the contents of either ProDOS volume on the Sider, press [B] from the ProDOS main menu - Applesoft. Then type:

CAT/HARD1/ **[return]**
or
CAT/HARD2/ **[return]**

Running a ProDOS Program

To execute a program in the ProDOS partition, type:

(PREFIX)/(PROGRAM NAME) **[return]**

The hyphen (-) and slash mark (/) are required syntax. There should be no spaces between the hyphen and the program's prefix, nor between the prefix, slash mark or program name. Example, type:

CAT/HARD1 [return] or CATALOG/HARD1 **[return]**

and if the program "HYPNOSIS" is listed. If so, type:

/HARD1/HYPNOSIS **[return]**

The program should load immediately. To exit "HYPNOSIS," press [esc].

ProDOS supports "tree-structured" directories, in which your "root directory" contains "subdirectories," resembling a family tree. Figure 14 depicts such a structure.

In this manner, you can subdivide your fixed disk into smaller, more manageable segments and access them with a simple series of ProDOS commands. These commands are presented in greater detail in the "Operating System Installation" chapter.

> **NOTE: You should not make it a practice to store application programs or data files in the ProDOS root directory. The root directory (i.e. /HARD1) can only hold 51 file entries. Once this limit is reached you will get a DISK FULL error message when you try and save additional files to this directory. This message may surprise you if you only have small files saved whose accumulated storage requirement are far less than the remaining storage area of the drive. Creating subdirectories will both overcome this situation as will as help you organize the data on your hard drive.**

4.3 CP/M INSTALLATION

First Class Peripherals supports any one of the following CP/M operating systems: Microsoft's SoftCard Family; Applied Engineering CP/AM 5.1 and PCPI, versions 1.5, 1.6 and 2.0. Numerous applications programs which work with these different versions of CP/M also work on the Sider.

> **NOTE**: Though the Sider supports all of the above versions of CP/M you can only have **ONE** version on the hard drive. If you have a need to use more than one version of CP/M you should choice which one you want on the Sider and run the other(s) from your floppies.

Although First Class Peripherals provides Support Utilities to help you install these operating systems on your Sider, you must supply the actual copy of the operating system software.

The following sections describe the installation of Microsoft SoftCard CP/M family, AE CP/AM and PCPI CP/M operating

systems. When you've completed the installation, take a moment to read the "Summary" section of this chapter.

4.3.1 Installing Microsoft Softcard

To install Microsoft's SoftCard, SoftCard II or Premium Card, turn off the power to your computer and Sider. Install the Microsoft SoftCard in expansion slot 4 inside your computer, following the directions provided with your SoftCard.

1. Although First Class Peripherals recommends use of expansion slot 4 for the SoftCard, it is not mandatory. Other expansion slots can be used.

   When you've completed installation of the SoftCard, apply power again to your system. The Sider's Main Menu screen will appear on your screen.

2. Insert a working copy of the SoftCard System Diskette into floppy disk drive 1.

3. Press [6] from the Sider's Main Menu screen to boot slot 6 which will load the CP/M operating system into your computer's memory. The Microsoft CP/M copyright information and the system's "A" prompt will appear.

> **NOTE:** The Sider doesn't support SoftCard version 2.20. If the copyright information includes this version number, you must contact your dealer or Microsoft about updating your SoftCard before you can use the Sider.

SPECIAL INSTRUCTIONS For SoftCard 2.23 Users:

The Sider needs Microsoft's 60K update utility program run to operate properly. If your current copyright information includes "44K Version. 2.23", you will need to run the Microsoft update program. Type:

CPM60 **[return]**

New copyright information and a message will appear as follows:

SoftCard CP/M
60KCP/M Disk update program
(C) 1982 Microsoft
Insert the 16 sector disk into drive A:

Press RETURN to begin

Leave the working copy of the System Diskette in the floppy disk drive 1 and press [return]. The following message will appear:

Diskette has been updated to 60K

Press RETURN to re-boot system

Press [return] and updated copyright information and "A." prompt will appear.

4.3.2 Installing Microsoft System on the Sider

Place your working copy of the Siderware Support Utilities for CP/M diskette in floppy drive 1. At the "A." prompt, type:

MPATCH **[return]**

This screen presents three options:

[1] Install with hard disk as A:, B:, C:, D:.

[2] Install with hard disk as C:, D:, E:, F:.

[3] Quit with no modifications made.

If you want to boot CP/M from the first volume of the Sider's CP/M each time you invoke the operating system choose option [1].

Conversely, if you use an application that requires you to boot from a floppy diskette each time you invoke the operating system, choose option 2. Option 2 assigns the volume A identifier to floppy disk drive 1.

> **NOTE:** If you choose option 2, you must insert a CP/M boot diskette into floppy disk drive 1 each time you invoke the operating system from the Sider's Main Menu; otherwise, the system will be unable to locate the boot track.

Choose option 1 or 2 and press [return]: the "A." prompt will reappear.

4.3.3 Installing Siderware Support Utilities

With the Siderware Support Utilities for CP/M diskette in floppy disk drive 1, insert the Microsoft System Diskette into floppy drive 2.

Note: if you have chosen to install the Sider as A:, B:, C:, & D:, your floppy drive 1 is now CP/M volume E: floppy drive 2 is now CP/M volume F:. At the "A" prompt, type:

F:PIP A:=F:*.*[V] **[return]**

to copy the System Diskette files to the CP/M partition on the Sider. When the files have been copied, the "A" prompt will reappear.

You now need to transfer a file named "MEXIT.COM" from the Support Utilities for CP/M diskette to the Sider. "MEXIT" is a program that easily allows you to exit from CP/M. Type:

PIP A:=E:MEXIT.COM[V] **[return]**

to transfer the file to the Sider. When the file has been copied, the "A" prompt will reappear.

When you've completed this sequence, Microsoft's CP/M operating system is installed on your Sider. To access CP/M, then, press [2] at the Sider's Main Menu screen whenever you apply power to your system.

To exit CP/M and return to the Sider's Main Menu, type:

MEXIT **[return]**

If however, you want a different name for the exit program - QUIT, for example - you can rename MEXIT. At the "A" prompt, type:

REN QUIT.COM=MEXIT.COM [return]

The system will change the file name and the "A" prompt will reappear. Note that the file names in this command must included the ".COM" suffix.

> **NOTE:** The following CP/M programs will not function when you boot into CP/M from the Sider's Main Menu.
>
> AUTORUN
> COPY.

4.3.4 Installing AE Z-Card

Applied Engineering provides a complete Sider installation section in the Appendix section of their manual. If you have the AE Z-Card use the instructions in their manual setting up the and CP/AM on your Sider.

Turn off the power to your computer and Sider. Install the Z-Card in expansion slot 4 inside your computer, following the directions provided with your Z-Card.

> **NOTE:** that although First Class peripherals recommends use of expansion slot 4 for the Z-Card, it is not mandatory. Other expansion slots can be used.

When you've completed installation of the Z-Card, apply power again to your system. The Sider's Main Menu screen will appear on your screen.

See the Applied Engineering manual.

4.3.5 Installing PCPI Appli-Card

PCPI installation requires the use of two floppy disk drives. PCPI CP/M produces "write-protect errors" if you try and replace a diskette during parts of the installation process. If you only

have one floppy disk drive, you must get a second one to install PCPI on the Sider.

> **NOTE:** APPLI-CARD has two diskettes: the APPLI-CARD System Diskette and the PCPI Utilities Disk. *Use only duplicate copies of both of these diskettes during the installation sequence.* Modifications occur to the files on the disks used. You may not be able to reuse them in a non hard drive situation. Label them clearly so they aren't mixed up with each other or with the Siderware Support Utilities for CP/M diskette.

Turn off the power to your computer and Sider. Install the PCPI APPLI-CARD in to expansion slot 4 of your computer. Follow the directions in your APPLI-CARD manual.

When you've completed installation of the APPLI-CARD, apply power again to your system. The Sider's Main Menu screen will appear.

4.3.6 Installing PCPI Appli-Card in the Sider

Insert a duplicated copy of the APPLI-CARD System Diskette into floppy drive 1 and a working copy of the Siderware Support Utilities for CP/M diskette in floppy drive 2.

Press [6] from the Sider's Main Menu to boot slot 6 and load the operating system. The APPLI-CARD CP/M copyright information and the system's "A" prompt will appear.

You need to copy a file from the Support Utilities for CP/M diskette to the APPLI-CARD System Diskette.

At the "A" prompt, type:

STAT [return]

> **NOTE:** The System Diskette must have enough disk space to accept the file. Be sure you make a working copy of the Appli-Card system diskette.

STAT will display the "read/write" space remaining on the dis-

kette. There must be at least 17 kilobytes (17K) available in order for the Support Utilities for CP/M diskette to fit.

If there is less than 17 kilobytes of free space, you must delete a file. At the "A" prompt, type:

ERA ADOSXFER.COM **[return]**

After deleting the file, the "A" prompt will reappear. The file you just erased can be replaced after the installation procedure is completed.

Copy the HARDISK.DVR file from the Support Utilities for CP/M diskette to the System Diskette. Type:

PIP A:=B:HARDISK.DVR[V] **[return]**

The system will copy the file to the Appli-Card system disk, and the "A" prompt will reappear.

PCPI software uses "device drivers" which allow CP/M to communicate with various peripherals. For PCPI's CP/M operating system to communicate with the Sider, you must modify these device drivers.

Replace the Siderware Support Utilities for CP/M diskette in floppy disk drive 2 with the PCPI Utilities Disk. Change drives by typing [B] [:] and pressing [return]. When the "B" prompt appears, type:

INSTALL **[return]**

The "Installation Menu" screen will appear.

Press [A] to "Get a driver file." The system will prompt you to "Enter file name." At the prompt, type:

A:DRIVERS **[return]**

The system will read the file from the System Diskette in drive 1 into its main memory and return you to the Installation Menu screen.

Press [A] again. At the "Enter file name" prompt, type:

A:HARDISK.DVR **[return]**

The system will read the file from the System Diskette in drive 1 into its main memory and return you to the Installation Menu screen.

Next, press [G] to "Change a device number." The system will prompt you to "Enter a driver number." In the table on the screen, locate the "DVR NUM" for "APL 16*35 FLPPY" (your floppy disk drive) and enter [that number] [return].

> **NOTE:** If a printer buffer is present in the 'DRIVERS' file, then it **MUST** be the last device in the list.

The system will then indicate the "current device number" for the floppy driver -it should be a zero (0) - and prompt you to enter the new device number. Enter a [4] [return]. The system will record the change and return to the Installation Menu screen.

If you wish to use a printer buffer on your computer, press [F] at the Installation Menu screen to "Move a driver." Locate the "DVRNUM" for the printer buffer and enter [that number] [return].

The system will indicate the current location (usually 3) of the driver and prompt you to enter a destination driver number (usually 4). Enter the [last driver number] from the list in the table above the prompts and press [return]. The system will relocate the printer buffer driver to the end of the list and return you to the Installation Menu screen.

Next, select option [B] from the Installation Menu screen to "Save DRIVERS file and write CP/M." The system will prompt you to enter a drive identifier. Press [A] and the system will record the data.

If everything went well, go to the next section entitled "Installing PCPI System on the Sider."

If, however, the system indicates that it "Could not find DLDRIVER.COM," try the following alternate steps. First, at the "Enter filename" prompt, type

B:DLDRIVER.COM [return]

If the file is on the PCPI Utilities Disk, the system will read it and give you a message to "Press any key to continue," returning you to the Installation Menu screen.

If the system indicates that it "Could not find STARCPM.COM," type

B:PCPICPM **[return]**

The system will read the file, prompt you to press any key to continue, and return you to the Installation Menu screen.

4.3.7 Installing PCPI System On The Sider

At the Installation Menu screen, press [X] to exit to CP/M. Then reset your computer by turning it and Sider off and then reapplying power a moment later. The Sider's Main Menu screen will appear.

Next, press [6] at the Sider's Main Menu screen to boot the System Diskette in floppy disk drive 1. Then copy the files from the System Diskette (in drive 1 or E:) to the first volume in the CP/M partition. At the "A" prompt, type:

E:PIP A:=D:*.*[V] **[return]**

The system will list the files as it copies them, then the "A" prompt will reappear.

Now, replace the PCPI Utilities Disk in floppy disk drive 2 with the Siderware Support Utilities for CP/M diskette. At the "A" prompt, type:

PIP A:=F:P*.*[V] **[return]**

This will copy two files from the Support Utilities for CP/M diskette: PBOOT and PEXIT.

Next, create a boot track for the CP/M operating system. At the "A" prompt, type

PBOOT **[return][return]**

If you strike any other key than [return] the second time, the operation will cancel and you'll have to invoke PBOOT again.

When this process completes, the "A" prompt will reappear. To return to the Sider's Main Menu run the PEXIT program. To execute PEXIT, type:

PEXIT **[return]**

If, however, you want a different name for the exit program - QUIT, for example - you can rename PEXIT. At the "A" prompt, type

REN QUIT.COM=PEXIT.COM **[return]**

The system will change the file name and the "A" prompt will reappear. Note that the file names in this command must include the ".COM" suffix.

PCPI CP/M operating system is now installed. To access CP/M from the Sider's Main Menu screen, simply press [2]. To exit from the CP/M operating system to the Sider's Main Menu screen, enter the [PEXIT] command or whatever command you've chosen as a replacement for PEXIT.

The four CP/M volumes on the Sider will be identified as volumes A, B, C and D, and the floppy disk drives will be E and F. To change volumes, simply enter the new volume identifier and a colon (:) at the prompt, and that volume prompt will appear.

4.4 APPLE PASCAL INSTALLATION

First Class Peripherals currently supports Apple's Pascal operating system, versions 1.1 (64K), 1.2 (64K and 128K) and 1.3 (64k and 128K), as well as application programs for those operating systems. Although First Class Peripherals provides Support Utilities to help you install Pascal on your Sider, you must supply the actual copy of the operating system software.

Use working copies of the Siderware Support Utilities diskette and diskette Apple1:. Do not use the master diskettes.

When you've completed the installation sequence, take a moment to read the "Summary" section of this chapter. It provides instructions regarding your other expansion cards and peripheral devices.

Apply power to your computer and Sider. The Sider's Main Menu screen will appear. Insert a working copy of diskette Apple 1: into floppy disk drive 1. If you have a dual disk drive system, insert a working copy of the Siderware Support Utilities for Apple Pascal diskette into floppy drive 2.

Press [1] at the Sider's Main Menu screen to boot Pascal. Then when prompted for 'WHICH VOLUME TO BOOT INTO' enter a [4] and press [return]. The Pascal Welcome screen and the Command prompt line will appear on your screen.

At the Command prompt line, press [F] to enter the Filer.

At the Filer prompt line, press [T] to Transfer files.

At the "Transfer?" prompt, type

APPLE1:=,HARD1:$ **[return]**

Upon completion, press [T] again to Transfer more files.

At the "Transfer?" prompt, type

FCP:=,HARD1:$ **[return]**

Upon completion, press [Q] to Quit the Filer.

At the Command prompt line, press [X] to eXecute a file.

At the "Execute what File?" prompt, type

HARD1:QUIT **[return]**

Pascal is now ready to be used. Simply press [1] from the Sider's Main Menu. When prompted for 'WHICH VOLUME TO BOOT INTO' enter a [9] [return] to boot into the first volume of the Sider. Then when ready to leave the Pascal environment, e-Xecute 'QUIT' from the Command line prompt.

4.5 SUMMARY

Now that you've installed your operating systems, you're probably anxious to start using the Sider. Before you start attaching your other peripheral devices to the computer, however, take time to complete two more operations.

First, install any application programs that you intend to use. "Application Installation" provides instructions for installing popular programs.

Second, when the application programs are installed, take time to check out the Sider's functionality. Run through several standard operating systems and application program functions with which you are familiar, to become comfortable with the Sider.

Also, practice with the Sider's Support Utilities, as described in the next chapter of this guide. Again, this practice will help you become familiar with the Sider before you start using it for your everyday processing tasks.

NOTES

5. SIDER OPERATIONS

Following installation of the application programs, you will be ready to use your Sider. This section provides an overview of the Sider's main functions.

The Sider's Main Menu screen, which appears each time you apply power to your computer system, offers you seven options:

Boot into Pascal
Boot into CP/M
Boot into DOS
Boot into ProDOS
Run Support Utilities
Boot into Slot 6
Quit and Park Heads

Options [1] -- [4] Are used to boot into a designated operating system. Only the operating systems you have installed will be available for use. When you boot an operating system, its respective prompt will appear on your screen. For example, the Applesoft prompt "]" appears when you invoke DOS 3.3

Option [5] Runs the Siderware Support Utilities. A submenu with nine utility options will display.

FIXED DISK DOS DIRECTORY - Provides a catalog of DOS volumes on the Sider.

DIAGNOSTICS - Tests the Sider's ROM, host adapter card and other components for proper operation.

DOS FILE UTILITIES - Emulates Apple's "FID" program, providing you with 10 programs that allow you to manage the files on the Sider.

BACKUP/RESTORE IMAGE - Allows you to back-up Sider images to 140K floppies, 800K floppies or to the tape subsystem/optional FCP tape subsystem.

CHANGE PASCAL UNIT NUMBER - Changes volume "unit" identifiers within the Pascal partition, particularly for use in a daisy-chain configuration.

MOUNT/DISMOUNT CP/M VOLUMES - Changes the volume assignments within the CP/M partition, particularly for use in a daisy-chain configuration.

MAKE NEW DOS BOOT TRACK - Changes slot assignments (see the "Adding New Cards or Changing Host Slots" section of "Appendix II, Application Installation").

FORMAT A FLOPPY - Formats a DOS diskette, and allows you to choose whether or not that diskette will be bootable.

INITIALIZE ANY SIDER VOLUME - Allows you to 'zero' or clean any volume on the Sider.

These Support Utilities are described in greater detail in the "Support Utilities" chapter of the guide.

Option [6] Allows you to boot from your floppy disk drive. This program is helpful since some programs cannot be transferred to the Sider.

> **NOTE:** When you boot into slot 6, the floppy drive then becomes the primary operating drive. To reload the Sider Main Menu simply reboot. If you are unsure on how to do this, please read your Apple User Guide.

Option [7] allows you to properly park the heads. This is important to the long-term operation of the Sider.

> **NOTE:** You should invoke this option each time you turn off your computer system. Also, if you must move the Sider, particularly long distances, parking the heads will help prevent damage to the fixed disk. Parking heads move the Siders read/write head to a safe area. This helps prevent data loss due to: moving system, static, power surges during the Apple startup, etc..

Regardless of how you structure your directories and files, remember that even a fixed disk is a volatile medium. Although it's more reliable and durable than other storage devices, it can still lose data - sometimes through hardware malfunctions, but more often through user errors.

To minimize the effects of data loss, the Sider features a backup and restore utility, which allows you to make backup copies of the Sider's files on floppy diskettes or the tape cassettes and to restore those files intact should you ever lose the master files on your Sider.

5.1 SUPPORT UTILITIES

Once you've installed your operating systems and application programs, and have begun using the Sider regularly, you'll discover that the subsystem is an assistant in your daily processing activities.

Generally speaking, your primary contact with Sider is through its Main Menu screen, which appears each time you apply power to the entire computer system. Through this screen, you'll boot the operating systems that you've installed, access the floppy disk drives and park the read/write heads each time you turn off the system.

Through the Sider's Main Menu screen, you'll also access the Support Utilities, which open up a whole new area of support for

your processing routines. Option [5] on the Sider's Main Menu screen accesses the Support Utilities Menu screen, which provides you with nine options. The following sections discuss these nine options.

5.2 [1.] HARD DISK DOS DIRECTORY

Option 1 on the Support Utilities Menu screen provides a listing of all files in the DOS partition directory. These files include Siderware Support Utilities for DOS 3.3 system files that were transferred to the Sider during the Auto Installation sequence.

Likewise, any files that you transfer to, or create in the DOS partition will appear in this listing. To access the DOS directory, press [1] at the Support Utilities Menu screen. The system will automatically display the directory of the first DOS volume.

To page forward into the list, press [return]. When you reach the end of the list, you have three options: Press [Q] and the system will exit you into DOS volume currently displayed, presenting the Applesoft prompt; press [return] and the system will display the directory of the next DOS volume; and press [esc] to exit to the Sider's Main Menu screen.

5.3 [2.] DIAGNOSTICS

The Diagnostics utility performs a systematic review of the host adapter card and the subsystem's integrated circuitry, searching for malfunctioning components or other sources of erroneous data.

To execute the Diagnostics utility, press [2] at the Support Utilities Menu screen. The system will present a brief message and the prompt you to identify your Sider as "Subsystem 1 or 2." If your Sider is attached directly to your computer, press [1] [return]; if your Sider is attached to another Sider in a daisy-chain configuration, press [2] [return].

Within several seconds the system completes its diagnostic routine, displaying the following message:

Testing ROM
Testing Host Adapter
Testing Controller
Diagnostics successfully completed
Press ESC to go to Sider Main Menu

Pressing [esc], will exit to the Sider's Main Menu screen.

You should perform diagnostics if the Sider repeatedly displays error messages or continually provides faulty data. Refer to "Trouble-Shooting Tips" if you encounter either problem. If you continue to receive the error messages, record them in the "Owner's Log."

5.4 [3.] DOS FILE UTILITIES

Emulating Apple's DOS 3.3 FID program, the DOS file Utilities offer you 11 file management functions. These functions work only on DOS 3.3 files, and not on CP/M, ProDOS or Pascal files.

Copy Files
Catalog
Space on Disk
Unlock Files
Lock Files
Delete Files
Reset Slot & Drive
Verify Files
Swap Source And Destination
Image Copy
Quit

The following sections offer details on each of the utilities.

> **NOTE:** You can press [esc] at any screen discussed in the following sections and the system will back up one screen, allowing you to make changes at any point in a given procedure.

1) Copy Files: With the Copy Files utility you can copy files from floppy diskette to floppy diskette, from floppy diskette to the Sider or from volume to volume on the Sider.

a) Floppy to Floppy: To copy a file from floppy diskette to floppy diskette, first make sure you have a formatted diskette onto which you'll copy the file. See "Format a Floppy" later in this chapter for instructions on formatting diskettes from the Sider.

Next, insert the "source" diskette into floppy disk drive 1. The source diskette contains the file that you want to copy. If you have two floppy disk drives, insert the "destination" diskette into drive 2. You'll copy the file onto this diskette.

Press [1] [return] at the File Utilities screen. The Copy Files screen will appear, prompting you to identify the source slot. Enter the [slot number] of your floppy disk controller card and press [return].

The system will prompt you to identify the source drive; press [1] [return]. The system will then prompt you to identify the source volume; enter a three-character identifier and press [return] to designate the default volume name.

NOTE: That if you enter the wrong volume number, you'll get the following error message: ERROR READING VTOC. If you don't know the correct volume number for your diskettes, simply press [return]. When designating a floppy as the source or destination drive no volume number identifier is needed. When copying to or from the Sider the volume identifier is needed.

Next, the system will prompt you to identify the destination slot, drive and volume. Enter the appropriate [slot] and [drive] coordinates and a three-character [volume] identifier, pressing [return] after each entry.

Copying a Single File

The system will then prompt you to enter the name of the file you want to copy. Type the file name and press [return], or press an equal sign [=] [return] if you want to copy all files on the diskette.

Copying the Entire Disk

If you use the wild card equal sign, the system will ask you if you want prompting. Press [N] - for NO - if you want to

copy all of the files on the floppy; or press [Y] - for YES - if you want to select designated files to be copied.

The system will instruct you to insert the disks and press any key to begin the copying process. When it completes the process, it will display a "Done" message. Then press [return] to exit to the DOS File Utilities screen.

b) Floppy to Sider: To copy a file from a floppy diskette to the DOS partition on the Sider, follow the same steps as copying from floppy to floppy. At the destination slot/drive/volume prompts, however, press [7] for the slot number, - if the Sider is located in slot #7 - [1] for the drive number and the [volume number] into which you want to copy the file.

If the Sider is installed in another expansion slot, simply enter that number. Also, if you have two Siders daisy-chained, you'll need to enter the appropriate drive number.

The system will instruct you to insert disks and press any key to continue. Likewise, it will indicate when the copy process is completed.

NOTE: You should copy files to any volume other than the DOS volume 1. Because that volume contains Siderware DOS 3.3 Utilities, you should take precautions against damaging or erasing those files.

c) Volume to Volume on the Sider: To copy a file from Sider DOS volume to Sider DOS volume, follow the same steps as copying from floppy to floppy. Note again that you should copy files to any volume other than the DOS volume 1. Because that volume contains Siderware DOS 3.3 Utilities, you should take precautions against damaging or erasing those files.

d) Slot/Drive/Volume Indicator: The first S0,D0,V0 reflects the source file information that you specify when you perform any copy functions, or use any of the other Support Utilities described later in this section. The second S0,D0,V0 reflects the destination file information.

NOTE: at the bottom of the DOS File Utilities screen the following message:

S0,D0,V0 S0,D0,V0

For example, after you copy a file from floppy to floppy on a dual floppy disk drive, the message would appear as follows when you return to the DOS File Utilities screen:

S6,D1,V0 S6,D2,V0

Until you reset the slot and drive numbers (see "Reset Slot & Drive") later in this section), these numbers will stay the same. Thus, the next time you copy a file from floppy to floppy you'll only have to provide the file name - the computer has stored the source and destination information.

5.4.1 Catalog:

At the Support Utilities Menu screen, the Hard Disk DOS Directory utility provides you with a list of files in the Sider's DOS partition, volume by volume.

Similarly, the Catalog utility at the DOS File Utilities screen provides you with a list of the files on a floppy diskette or the Sider's DOS partition.

Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing by pressing [7].

Next press [2] [return] at the DOS File Utilities Screen. The system will provide instructions for accessing the DOS volume directory of your choice.

5.4.2 Space on Disk:

This option, as its name indicates, lets you see how much space on a designated floppy diskette or Sider DOS volume is used and how much is available.

Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing by pressing [7].

Choose option [3] [return] at the DOS File Utilities screen. The system will display the used and available space, then prompt you to press [return] to return to the DOS File Utilities screen.

5.4.3 Unlock Files:

Unlocking a Single File

This utility removes the "soft" write-protect lock that you can install on a given file (see "Lock Files"). Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing. Choose option [4] [return] at the DOS File Utilities screen. The system will prompt you to enter a [file name]; enter the name of the file you want unlocked and press [return].

Unlocking an Entire Volume

Again, at the "Enter file name" prompt, you have the option to use the wild card sign [=]. If you choose to use the wild card, the system will ask you if you want prompting. Press [N] - for NO - if you want all of the files in the volume unlocked; or press [Y] - for YES - if you want to unlock only selected files.

The system will indicate when it has completed the task and prompt you to press [return] to exit to the DOS file Utilities screen.

This function is useful when you want to gain access to a locked file for changes or deletions. If you make changes

to a file, however, be sure to lock it again when you've completed the changes.

5.4.4 Lock Files:

The Lock Files utility is particularly useful for programs or data files that you store on the Sider. It allows you to install a "soft" write-protect lock on a designated file, preventing inadvertent changes to or deletion of the file.

Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing by pressing [7].
Choose option [5] [return] at the DOS File Utilities screen. The system will provide instructions for locking the designated file and indicate when it has completed the task. Then it will prompt you to press [return] to exit to the DOS File Utilities screen. See "Unlock Files" to gain subsequent access to the locked file.

5.4.5 Delete Files:

As its name implies, this utility allows you to delete selected files on a floppy diskette or in the Sider's DOS volumes.

Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing by pressing [7].

Choose option [6] [return] at the DOS File Utilities screen. Note that the system will warn you if the file you want to delete is locked, and will refuse to proceed. If this occurs, unlock the file first (see "Unlock Files"), then delete it.

The system will indicate when it has completed the task and prompt you to press [return] to exit to the DOS File Utilities screen.

5.4.6 Reset Slot and Drive:

Clears the slot/drive/volume indicator on the DOS File Utilities screen, allowing you to assign new data for a file utility function.

To execute this utility, simply press [7] [return] at the DOS File Utilities screen. The screen will flash briefly and the slot/drive/volume indicator will return to its original state, listing zeros (0) for each item.

5.4.7 Verify Files:

This utility reviews the contents of a designated field or an entire volume, verifying the integrity of the data. Data verification is useful any time you copy, move, backup or restore files, simply as a safeguard against data errors.

Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing by pressing [7].

Choose option [8] [return] at the DOS File Utilities screen. The system will indicate when it has completed the task and, unless it finds a data error, will automatically return you to the File Utilities screen.

5.4.8 Swap Source and Destination:

Another short-cut function, this utility exchanges course and destination coordinates on the slot/drive/volume indicator. It's useful if you make changes to files or are simply moving them.

To execute this utility, press [9] [return] at the DOS file Utilities screen. The source and destination coordinates will automatically change on the slot/drive/volume indicator. You can then proceed to your next operation.

5.4.9 Image Copy:

(Copying entire volumes)

This utility allows you to copy entire volumes for a DOS 3.3 floppy diskette to another DOS 3.3 floppy diskette; from a DOS 3.3 floppy diskette to the Sider's DOS volumes, from the Sider DOS volume to another Sider DOS volume.

However, note that you must copy "like" images - that is,

you can only copy a small volume to another small volume, or a large volume to another large volume. Therefore, you cannot image copy a large volume from the Sider to a floppy diskette, which is considered a small volume. Additionally, do not image copy any volumes to the first DOS 3.3 volume on the Sider (unless you're copying the Siderware Support Utilities for DOS 3.3). Any other image will delete Support Utilities from the first DOS 3.3 volume, disrupting normal Sider functions.
Choose option [10] [return] at the DOS File Utilities screen. As with previous copy utilities, Image Copy doesn't require a volume coordinate for a floppy diskette - the default [return] is sufficient. The utility does, however, require a volume coordinate for the Sider.

The system will begin copying the files, displaying dots - one dot per track - on the screen to measure its progress. Then the system will indicate when it has completed the task and prompt you to press [return] to exit to the DOS File Utilities screen.

5.5 [4.] BACKUP/RESTORE IMAGES

The First Class Rule: If you can't afford to lose it
you'd better BACK IT UP!!!

The backup utility and its counterpart, the restore utility, are very important accessory of the Sider. Should your Sider require service, (whether in or out of warranty) it is nearly impossible for your data to be recovered. As a safety precaution, we recommend you backup your entire disk at least once a week for general files, and daily for those ones you just can't be without.

First Class Peripherals developed a Backup/Restore Image application which will allow you to place an image of a volume, partition, or everything onto a variety of media. Currently the application supports both the Apple floppy products - Disk][(140K) and the UniDisk 3.5 floppy (800K). First Class also offers the Sider T6, a tape backup system. For instructions on using the B-Sider and Sider T6 refer to their manuals.

The Backup/Restore Images program has eight management functions.

1) Set Backup/Restore Parameters
2) Initialize Backup Media
3) Backup data
4) Restore data
5) List Backup Directory
6) Set Date and Time
7) Miscellaneous
8) Quit

The following sections offer details on each of the functions. Note that you can press [esc] at any time and the program will back up one screen, allowing you to make changes at any point in a given procedure.

5.5.1 Set Backup/Restore Parameter

In this sub-menu, you can specific the type of parameters that the Backup/Restore utility will use. They are...

1) Hard Disk Slot7
2) Hard Disk Drive # 1
3) Floppy Disk Slot 6
4) Floppy Disk Drive #1
5) Tape Drive Slot7
6) Backup MediaFloppy
7) Backup Banks used 0
8) Restore Banks used1
9) Exit

> **NOTE:** Numbers 5,7, and 8 apply only to the Sider Tape units. You should not need to change any of them for use with your floppy drives.

To change an entry, simply press its' line [number] the type in your change. For example, to change from the first Sider to the second Sider - daisy-chained Siders -, enter the number [2] and you will notice that the "Hard Disk Drive #" now indicates "2". Press [2] again, and it will toggle back to "1."

Functions "7" and "8", refer to the number of extra 64K banks of memory used during the backup or restore processes. These are not used with floppy backups.

5.5.2 Initialize Backup Media:

(Sider Tape Drives Only)

5.5.3 Backup Data:

To backup an image from the Sider, you must specify the type of image which you wish to backup, i.e., (1) total image of the Sider, (2) a particular operating system's partition or (3) a single volume within an operating system's partition. Use the arrow keys to move the highlighter around the backup screen's partition diagram. The box in the upper right hand corner of the screen reflects the destination you chose when setting the parameters. Once a 'connection' is made, press [return].

Entering File Name
Next, you need to [name] this backup image. For example, if you are backing up CP/M volume 'B', which contains your Wordstar files, you could name this backup image "MEMOS." Once the name is entered, press [return].

The 'name' can only be 11 characters in length. You may add an additional 39 characters in a comments section. For example as a comment, "THESE ARE MY MEMOS WRITTEN IN JANUARY." Comments are not required. When done press [return] for none.

Backing up to a Floppy
The backup program will do a few calculations. If you are going to use floppies, the application will determine the number of floppies required to backup the portion of the drive you have specified. It will inform you to set aside that number of floppies. Next, the application will format each diskette and assign each a number. We recommend that you place a paper label on each diskette. Number these diskettes as you use them.

Upon completion of the formatting, you will be prompted to place the first diskette back into the drive. The program will write some important information to the diskette including the end-of-file flag.

If standard Apple 5 1/4 floppies are used to backup your Sider, you should take care when you organizing your hard drive. An

image backup of a 20 Megabyte hard disk will take in excess of 140 floppies. By organizing your data such that the information you most need backed up is in particular volumes, you may only need to backup a few volumes, instead of the entire drive.

If only a couple of files have changed since your last backup and they will fit on standard floppies, it may be easier to simply use the native operating system file transfer utility to copy the file from the hard disk to a floppy.

As a side note, if you are backing-up a Sider D2, and using 800K floppies, it would take 26 diskettes and 3 hours. First Class offers a backup streaming tape unit which can store the entire hard drive on a single tape and the backup would only take a few minutes of unassisted operation.

5.5.4 Restore Data:

To restore an image back to the Sider, you must locate the backup floppy set and place the first diskette into the floppy drive. Once the correct floppy is inserted and backup name and comments will be displayed.

For example, suppose you backed up an image of the entire DOS operating system. But, you only wish to restore just DOS volume 3. Pick the restore option to restore a single DOS volume. After doing so, you will be given the opportunity to determine where on the Sider you would like this volume to be restored to. If the volume was a large volume, then you will only be given the large volumes on the Sider as choices. After picking the destination volume, press [return]. The application will locate that particular image, or sub-image, and restore it to the Sider.

> **NOTE:** You cannot restore a volume which is larger than the destination volume on the Sider. You could restore a small volume to a larger one, BUT if you did, the larger volume would be reduced to the size of the restoring smaller volume.

The program will adjust the destination volume within constraints of the directory structure of the particular operating system.

DOS 3.3 -the only restriction is the volume sizes must be equal. Small volume to small volume and large volume to large volume.

ProDOS -the only restriction is that the Sider volume must have the same 'bit map sector' size. This sector size changes in multiples of 2 Megabytes or 4096 Blocks (512 bytes each.) So, if the Sider has a larger 'bit map sector' size, then you will have to execute the "FILES" utility to restore to this larger volume.

CP/M -the only restriction is that the allocation unit (page) size must be of the same type, i.e. both 2K, both 4K for both 8K. So if the Sider has a larger allocation unit size, then you will have to execute the "FILES" utility to restore to this larger volume.

Pascal -no restrictions, due to the flexibility of Pascal directory.

It's very important to note that when an image is restored to the Sider, that it 'REPLACES' all the data on the Sider. For example, you wish to restore the Pascal Volume 1 to the Sider. Upon completion of the restoration process, all the data which was on the Pascal Volume 1 has been over-written with the data from the floppies containing the backed up data.

5.5.5 List Backup Directory:

This function allows you to display the important data regarding your backed-up data. Simply place the floppy into the selected disk drive and press [return]. The screen will display the backup set name, date/time created (if specified by backup time), image name, your comments, etc.

Upon completion, press [return] to exit to the main backup/restore menu.

5.5.6 Set Date and Time:

This function allows enabling/disenabling of a Thunder-Clock compatible clock card as well as to set the correct year. If this type of card is in the Apple, a time and date stamp will be written to the backup medium. But, if a card is not found, then you can enter your own 'time string'. This string can consist of any set of characters you wish.

5.5.7 Miscellaneous:

(B-Sider Only)

5.6 [5.] CHANGE PASCAL UNIT NUMBER

(Daisy-chaining Utility)
Option 5 allows you to change the volume (unit) identifiers in the Pascal partition and to designate which volumes will be on-line in a daisy-chain configuration.

This utility allows you to assign Pascal unit numbers to each pascal volume on each Sider. When daisy-chaining, you can have up to eight (8) volumes accessible.

To select which volume you wish to change, simply press [return]. To select a volume assignment, simply use the [arrow keys].

To record the new unit numbers, press [control] [R] simultaneously. Then press [esc] to return to the Sider's Main Menu Screen.

We recommend leaving the floppies as Pascal units #4:, & #5:. This will insure the formatter program will function properly on these devices.

> **NOTE:** This utility will allow the Sider Pascal volumes to reside above pascal unit 12. This could be useful, if you need to have more than 2 "other" volumes. For example, you wish to have 2 each. 140K floppy disks, 1 each. RAM disk and the 4 each. Sider Pascal volumes. Simply execute this utility and change the Pascal unit assignments for the Sider volumes to 17, 18, 19 & 20. So now your floppies can be 4 & 5, and the RAM disk could be 9.

If you will be using the UniDisk 3.5 in Pascal, you will need Apple Pascal 1.3. This disk could reside as Pascal volume 9 or 10 as well. If you are using more than two floppies, a 5 1/4 inch and a 3 1/2 inch floppy, some RAM drives or other devises which are assigned volume numbers, you should set your Sider Pascal volumes at 13 and higher.

5.7 [6.] MOUNT/DISMOUNT CP/M VOLUMES

(Daisy-chaining Utility)

If CP/M is installed on both Siders, you can have as many as eight CP/M volumes: four volumes on each Sider. Only four of these eight volumes can be on-line at a time. You must designate which four volumes will be "ON" and which be "OFF" each time you access CP/M.

To accomplish this, return to the Sider's Main Menu screen. Choose option [5] and the Support Utilities Menu screen will appear. Next, choose option [6], Mount/Dismount CP/M Volumes.

At the CP/M Partition screen, press [return] to move the cursor from one volume to another. At each volume, decide whether it will be "ON" or "OFF" and press [0] or [1] accordingly.

When you've made your changes, press [control] [R] simultaneously to return to the Sider's Main Menu screen.

From that point forward you can change the volume identifiers simply by invoking the Mount/Dismount CP/M Volumes utility.

5.8 [7.] CREATE DOS BOOT TRACK

If you move the host adapter card to another expansion slot after the initial installation of your Sider, you must make adjustments to the Sider so it will boot accordingly (see "Adding New Cards or Changing Host Slots" in "Appendix II, Application Installation"). The Create New DOS Boot Track utility performs this task for the DOS partition on your Sider.

To execute the program, choose option [7] at the Support Utilities Menu screen. The Create DOS Boot Track Utility screen will appear. The system will ask you to enter a new expansion slot number. Enter the appropriate number and press [return]. The system will indicate when it completes the change, and instruct you to power down the system.

At this point, make the appropriate slot changes, and then apply power to your system again. If you've chose a slot that's higher than the one in which your controller card is inserted, the Sider will boot when you apply power.

If you've chosen a slot that's lower than the one in which your controller card (floppy) is inserted, the floppy disk drive will boot

and you'll have to manually boot the Sider. To manually boot the Sider, press [control] [reset] simultaneously to get the Applesoft prompt. At the Applesoft prompt, type

PR#x [return]

The slot number in which you've inserted the host adapter card immediately follows the pound sign (#).

5.9 [8.] FORMAT A FLOPPY

The final option on the Support Utilities Menu screen allows you to format a DOS data diskette from the Sider.

Choose option [8] [return] and the system will provide you with instructions for formatting a floppy diskette. When you finish formatting, you'll return to the Sider's Main Menu screen.

5.10 [9.] INITIALIZE ANY SIDER VOLUME

This utility will allow the user to initialize any volume on the Sider. It's a very useful, but due to its nature, can be very destructive. This program has a menu which allows you to choose which type of volume you are interested in initializing. Choose option [9] [return] and the system will provide you with the following choices.

1) FORMAT A DOS VOLUME
2) FORMAT A CP/M VOLUME
3) FORMAT A ProDOS VOLUME
4) FORMAT A PASCAL VOLUME
5) QUIT

Once you have specified the volume type, you will be prompted for the volume number. For example, you need to initialize the second CP/M volume (B:) on the Sider. Press a [2] [return]. Then press a [2] again and press [return]. Since this program is destructive - reformatting a volume - you will be give one last opportunity to abort. If you wish to proceed, then type [GO] and press [return]. Upon completion you will be returned to the program entry menu.

> **NOTE**: When formatting ProDOS volumes, you will be asked which volume you want reformatted and required to

enter the ProDOS prefix for that volume. It is important that you DO NOT enter the leading '/' (slash) mark as part of your volume name. Doing so will cause the reformatted volume to be named " //HARD1" instead of "/HARD1". This will cause numerous problems when using ProDOS.

5.11 ADDITIONAL DOS 3.3 UTILITIES

On the Support Utilities for DOS 3.3 diskette are three additional utilities. The following paragraphs describe LBLDSK, CHKDSK and READ PARAMETER.

5.11.1 LBLDSK 80 column only

From the Sider's Main Menu, choose option [3] to boot into DOS 3.3. The LBLDSK program allows you to assign a "label" or volume name to each of the DOS volumes on the fixed disk.

To run the program, type

BRUN LBLDSK ,V1 **[return]**

The program will then prompt you for the volume number you want to label.

For example, if you had earlier used the DOS copy file Utilities to transfer the ZARDAX word processor to volume 5 on the Sider then and press [return]. The system will then ask you for the volume's name. In this example, you would type

ZARDAX **[return]**

Follow the same steps to label any of the other DOS 3.3 volumes on the Sider. To exit the program, simply press [return] the next time the program prompts you to enter a volume number.

5.11.2 CHKDSK

CHKDSK offers you a quick, overview look at your DOS 3.3 partition. It also allows you to quickly identify which of your DOS volumes are being used at any given time.

CHKDSK makes use of the labels you assigned to your DOS 3.3 volumes on the sider. CHKDSK requires that your video monitor be in 80 column mode. If you don't have an 80 column card CHKDSK will not work properly. If the monitor is currently set in 40 column mode, you can change into 80 column mode by first entering the DOS partition by selecting 3 from the main menu then type:

PR#3 **[return]**

Next type

BRUN CHKDSK -- 80 COL. ONLY,V1 [return]

to execute the program. A report listing all of the DOS 3.3 volumes will appear on your screen. The report lists each volume's number, label, disk space used and currently available.

At the end of the report a summary of the DOS partition will appear, and the system will list what percentages of the total space in the DOS 3.3 partition is in use.

5.11.3 Read Parameters

READ PARAMETERS offers you the ability to display the details of the partition structure of the Sider. This program can give the partition information you will need if you are planning to reformat your drive and then want to set it up the same way again. To execute this program get into the DOS 3.3 partition and type:

RUN READ PARAMETERS **[return]**

5.12 SUMMARY

Support Utilities are an integral part of your daily operations with the Sider. Becoming familiar with them quickly will save you time and effort in the long term. Likewise, using them regularly to maintain your Sider file structure and your backup library will significantly increase your productivity.

6. ProDOS UTILITIES SECTION

6.1 THE SIDER SHELL UTILITY

The Sider Shell program was incorporated into our Siderware diskettes by popular demand. The Sider user needed a menu approach to selecting programs in the ProDOS environment. The concept was to present a menu, -- user defined and constructed - and be able to select a particular program, -- Appleworks for example -- by simply positioning the cursor bar over Appleworks, or just entering the number which corresponds with the cell labeled Appleworks.

Program Requirements:

Apple IIe or IIGS
Apple's 80 column card or equivalent,
ProDOS BASIC V1.1 or later -- very important.
ProDOS 8 bit versions (ProDOS 16 not supported)

6.1.1 Installation

The Sider Shell can be invoked manually by simply entering the following command:

```
]-SHELL.SYSTEM                    [RETURN]
```

Or, it can be invoked automatically when ProDOS is booted if the SHELL.SYSTEM file is the first "xxxx.SYSTEM" file listed in the root directory on the first Sider ProDOS volume:\HARD1.

6.1.2 Adding an Entry to the Sider Shell:

Position the cursor bar to the item, or "cell", on the menu that you wish to edit by using the "arrow" keys. Once there, enter the character: [E] to enter the edit mode. You will then be prompted for the number of the cell that you wish to edit. Since we have already have the cursor positioned on the appropriate cell, simply press return. Next, you will be presented with a screen which will be awaiting four inputs.

The following are some examples:

Example 1: Go to Applesoft Basic

1. APPLESOFT	Application Name
2. /HARD1	Application Prefix
3. BASIC.SYSTEM	Application Path
4. BLANK	Startup Path (Not needed to run a "SYS" type file)

Example 2: Boot up Appleworks ...

1. APPLEWORKS	Application Name
2. /HARD1/APPLEWORKS	Application Prefix
3. APLWORKS.SYSTEM	(or Aplworks.sys depending on version of Apple works used.)
4. BLANK	

Example 3: Run a basic program from the Sider Shell ...

1.MY GREAT PROGRAM	Application Name
2./HARD1/MY.PROGRAMS	Application Prefix
3./HARD2/UTIL/BASIC.SYSTEM	Application Path
4.GREAT	Startup Path

Example 3 shows some of the strengths of the Sider Shell program.

Line 1 — can be any string of normal character which you choose as the title for a particular program, usually the name of the program.

Line 2 — is the Sider's ProDOS prefix where the program to be run resides. In are example the program "GREAT" is in a subdirectory of /HARD1 called MY.PROGRAMS.

Line 3 — is normally used to list the "xxxx.system" file which is to be run. In this case the BASIC.SYSTEM program is stored in another ProDOS volume: /HARD2 and in a subdirectory called UTIL.

NOTE: To run an Applesoft or Binary type program, you MUST have the file BASIC.SYSTEM used as the Application Path (as shown on line 3 above).

Line 4 simply contains the name of the Applesoft program that is to be run: GREAT.

The Sider Shell program follows the ProDOS 'quit call' protocol. Consequently, when you exit applications which also support this protocol, the Sider Shell is automatically invoked again. While in Applesoft Basic, you can also get back to the Sider Shell by simply entering the command "BYE" at the Applesoft prompt. The ProDOS file BASIC.SYSTEM version 1.0 does NOT support the "BYE" command. Thus, if you should discover that the "BYE" command does not work, you will need to upgrade your ProDOS User's Diskette at your local Apple dealer. This is a free upgrade. It is MANDATORY that you use V1.1 or higher of BASIC.SYSTEM in order to be able to run either a "BIN" or "BAS" type file from the Sider Shell as illustrated in example 3.

For additional help with the editing commands, type the character: [?] or [h] at the Sider Shell menu followed by a to see the Shell help screen. Finally, after making your changes, don't forget to type [S] to save your changes permanently!

6.1.3 Booting The Shell

The following are instructions on how setup the Sider Shell program so that it will automatically load each time you select ProDOS from the Sider's Main Menu.

1. From the Sider's Main Menu select item [4] to boot into ProDOS.

2. When ProDOS's user's disk menu loads, select [B] to enter Applesoft basic.

3. Next, preform the following file maintenance operations by typing.

```
UNLOCK BASIC.SYSTEM                [return]
DELETE BASIC.SYSTEM                [return]
RENAME SHELL.SYSTEM,SHELL.OLD      [return]
FILER                              [return]
```

4. When the FILER loads press [F] to go into the FILES COMMANDS sub-options.

5. Next press [C] to select the COPY FILES sub-option.

6. When prompted for a pathname enter the following:

   Pathname:/HARD1/SHELL.OLD [retrn]
   To Pathname:/HARD1/SHELL.SYSTEM [return][return]

7. When the copying is complete, press the [esc] key to return you to the FILE COMMANDS menu.

8. From the FILE COMMANDS menu, again press [C] to select the COPY FILES sub-option.

9. Insert the Apple ProDOS users diskette into floppy drive 1. When prompted for the pathnames enter the following:

   Pathname:/USERS.DISK/BASIC.SYSTEM [return]
   To Pathname:/HARD1/BASIC.SYSTEM [return][return]

> **NOTE:** You may need to check the ProDOS volume I.D. of the Apple user disk in order to successfully copy files from it. To find the its' I.D. simply select the LIST VOLUMES option from the volumes options sub-menu.

Upon completion of the above procedure, the Sider Shell utility will automatically load each time you enter the ProDOS partition from the Sider's Main Menu.

6.2 BACKUP II

The Backup II program was developed by Apple Computer to provide an efficient means of backing up ProDOS files from the Apple ProFile hard disk drive to floppy diskettes. With this program, files can be saved on either 5.25-inch or 3.5-inch diskettes. With Backup II, very large files, files too big to normally fit on a floppy, can be copied such that they span more than one diskette. This is important since on a ProDOS hard disk volume, files can be up to 16 Megabytes in size.

The one disadvantage inherent to Backup II (and most backup programs) is that the files created on the backup diskettes are in an archive format. This means they are unreadable except by the restore utility in the Backup II program. The files would first have to be restored before they could be used. Backup II can

both backup and restore to ANY ProDOS compatible disk storage. It can restore files not only to the hard drive, but also to another floppy drive.

REQUIRED HARDWARE

To use the Backup II program, you will need the following:

- An Apple IIe with at least 64k of memory - or - an Apple IIGS.
- At least one Apple brand floppy drive (5.25 or 3.5 inch).
- Your Sider hard disk subsystem.
- An adequate supply of blank floppy disks.

AN OVERVIEW OF BACKUP II

The Backup II program is a very important tool in safeguarding ProDOS files on your Sider. The strategy that you will implement for backup will depend on how heavily you use your Sider and how crucial the data on it is. You can backup either the an entire ProDOS volume or a selected directory structure (pathname). The files backed up are stored in a File-by-File format. This type of backup is very flexible in the event you need to restore information from the backup floppies. Image backups (also referred to as Mirror Image) usually backup unused space on the hard disk. Backup II only backs up files and so will take much less time and use far fewer diskettes than an Image type backup.

Backup/Restore can be selected from the Siderware's Support Utility Menu does a true Image backup. This program can backup the whole drive, a particular operating system or a volume in an operating system. Backup II can only backup ProDOS, but is usually the a preferred method for backing up ProDOS files on the Sider to floppies. Not only will the backup and restore processes be much more efficient, you will also have much greater flexibility when restoring. Since files are being both backed up and restored on a File-by-File basis, Backup II allows you to restore files to a different sized volumes. This gives you the flexibility of being able to restore to a another hard drive with different volume sizes or of reformatting and changing the ProDOS volume sizes on your Sider and then restoring the files to these new volumes. Files can even be restored to another 5.25 or 3.5 inch floppy disk drive. The Sider's main backup utility is much more rigid. It requires you to restore the contents of the ProDOS volume to a volume of nearly equal size.

Backup II supports incremental backups. When the Backup II program is run, it sets an archive flag on each ProDOS file it backs up. This archive bit is used by the Backup II program to determine if a ProDOS file has been previously backed up. If a file on your hard disk is written to or updated after a backup has taken place, the ProDOS directory information will then flag the file as being "modified". The next time you run Backup II you can instruct it to only backup those files which have been modified. This option can greatly reduce the number of files and time needed to backup your data.

Apple's Backup II program allows you several options for backing up your Sider's ProDOS volumes.

A full volume backup by pathname can be specified by simply typing in /HARD1/= at the source prompt. All files within all subdirectories on the volume /HARD1 would then be backed up.

You may specify only files that are within or below a specific directory to be backed up. For example, assume you have a directory on /HARD1 named LETTERS/ and this directory has two subdirectories named PERSONAL/ and BUSINESS/. If you wanted to backup all of your files in the LETTERS/ directory and its' subdirectories, enter /HARD1/LETTERS/= as the source pathname. All files in the directories PERSONAL/ and BUSINESS/ would also be included in the backup.

You may select the incremental option to only backup files that have been modified since your last backup. Use the pathnames as you would in the other backup methods. With this option, you can backup all modified files in a ProDOS volume or from any specified subdirectories.

Combining the above alternatives can provide an efficient and effective backup program. How you choice to design your backup strategy will greatly depend on how you use your Sider and how frequently files are being updated. For some applications, a monthly full backup with weekly incremental backups may be sufficient. If large amounts of data are being entered daily, daily incremental backups and perhaps a weekly full backup might be recommended. If your important files are in selective subdirectories on the Sider, you may want to specify the pathnames to these directories and do separate backups for each pathname,

rather than one backup for the entire volume. This may reduce backing up unimportant, non-crucial files.

6.2.1 Backup II Function Keys

The following command can be used throughout Backup II:

If you are backing or restoring complete volumes, when prompted for a pathname to 'backup from' or 'restore to', typing the letter "S" will allow you to change the ProDOS slot and drive designations.

> NOTE: SUBDIRECTORY LEVELS: Backup II support a maximum of 15 levels of ProDOS subdirectories. This does not mean 15 Subdirectories but levels of directories. If you have created more than 15 levels of subdirectories, you will need to reorganize your directories and files if you want to use BACKUP II or the backup will not work properly.

6.2.2 Running Backup II

The Backup II program is on the Siderware ProDOS utility diskette and is copied to /HARD1 as a normal part of the ProDOS installation described in Section III in the 'ProDOS Installation.' You can setup Backup II to run from any ProDOS-8 menu utility such as the Sider Shell or ProSel. It can also be run from the IIGS Finder.

To run BACKUP II form your Sider, simply select option B to go to BASIC. At the Applesoft BASIC prompt simply type:

```
]-BACKUP.SYSTEM
```

to load the program. At this point, you will see the program's main menu appear. It will have three options:

```
B - BACKUP FILES
R - RESTORE FILES
Q - QUIT
```

BACKING UP

To backup, insert a blank--formatted diskette into the floppy drive you wish to backup to.

> **NOTE**: Backup II will format the diskette for you automatically if it is not already formatted. Thus, the diskette does not have to be pre-formatted. However, this will increase the time required to backup the your files.

Take option B from the BACKUP II Main Menu to backup.

You will then see the following menu:

M - BACKUP MODIFIED FILES
P - BACKUP BY PATHNAME

Type P if you want to backup all files on the volume or all files within a subdirectory.

Type M if you want to only backup files within a volume or pathname that has been modified since the last backup. NOTE: if this is the first time you have backed up M will back up all files in the specified volume.

Backup II will now prompt you for a pathname to backup. Type the volume name, (i.e. /HARD1/=), to backup all files on the volume if option P was taken above. If option M was taken instead in the previous step, then only all modified files in the volume will be backed up. Remember, you may type the letter "S" instead of a pathname to specify the volume by slot and drive numbers.

To backup files within a subdirectory, type the full ProDOS pathname to that directory. For example, type /HARD1/APPLEWORKS/= to backup files within the subdirectory named APPLEWORKS/ and files within any subdirectories lower in the ProDOS tree structure.

> **NOTE**: The wildcard "=" can be use to backup selected files begin with the same characters. In the above example, if you had entered a pathname of /HARD1/APPLEWORKS/WP= , all/only files starting with the letters "WP" would be backed up.

Next, Backup II will prompt you for the slot and drive number for the floppy drive you wish to backup to. For example, type a 6 and then a 1 to specify your first 5.25 inch floppy disk drive as the backup media.

The program will now construct a table of contents for the volume being backed up and store it on the first backup diskette. Once this is created, the program will start backing up the actual files to the diskettes. Backup II automatically names each backup diskette with the name BACKUP.VOLUMEn, where n is the volume number (1,2,3, etc.).

As additional diskettes are needed, you will be prompted to insert new floppies. The volume name will be identified at this time. Be sure to label each diskette with the proper backup volume name. This will assist you in keeping the diskettes in order and will facilitate the restore process. When Backup II has complete the backup, the following message will be displayed:

OPERATION COMPLETE
PRESS SPACE TO CONTINUE

Remove the final backup diskette from the floppy drive. Press ACE BAR to return to the backup files menu. Type to return to the Backup II Main Menu.

6.2.3 Restoring A Complete Volume

Before attempting a full volume restore, it is a good idea to reformat your Sider to insure any bad block which may have developed on it over time is properly de-allocated. To reformat, simply boot the Sider's Installation Utility Diskette and proceed as if you were setting up the drive for the first time.

CAUTION: IF YOU HAVE OTHER OPERATING SYSTEMS INSTALLED ON YOUR HARD DRIVE, DO NOT REFORMAT YOUR SIDER UNLESS THE OTHER PARTITIONS ARE ALSO BACKED UP.

If you are using a Sider, Sider][, or Sider D2, and have other operating systems on the drive, you may not want to bother with reinstalling each of them. Use either Apple's ProDOS utilities: the Filer program or the System Utilities, to do a verify scan to

check for bad blocks on the Sider volumes. If no bad blocks are found, you may then use the format a disk option from the Apple utilities to re-initialize the volume. You can then proceed with the full volume restore. However, if bad blocks are discovered, then reformatting the Sider will be mandatory to eliminate them.

To use Apple's Filer program to check for bad blocks, select option V from the Filer's Main Menu for the Volume Commands menu. From this menu, select option D to Detect Bad Blocks. The program will then ask you for the slot and drive numbers for the volume to be tested. The program will begin a verify scan of all of the blocks on the volume. You will be notified if there are any bad blocks found.

The newer Apple System Utilities can also be used to do a verify scan of the ProDOS volumes. From the program's Main Menu, select option 8 for Advanced Operations Menu. From this menu, select option 4 to Verify That a Disk is Readable. The program will prompt you for the slot and drive number for the volume to be tested.

Once the verify is done, continue on and do the Format a Disk option. This option is available in the Filer program on the Volume Commands menu. It is also available as option 6 on the main menu for the ProDOS System Utilities. With both programs, you will be prompted for the slot and drive numbers of the hard disk volume. At this point the ProDOS system information on the volume will be completely re-initialized.

WARNING: Be absolutely sure at this point that there is no data on your Sider volume that is important and is not backed up. If so, copy these files off of the Sider before continuing with the Format a Disk procedure.

Once you are confident that the destination volume has no errors in it, you may proceed with the full volume restore. Follow these steps:

Insert the first backup diskette, /BACKUP.VOLUME1, in your floppy disk drive.

Load the Backup II program. From the Main Menu, take option R to Restore Files. The following menu will appear:

V - RESTORE VOLUME
P - RESTORE BY PATHNAME
L- LIST FILES

From the menu, take option V to restore the entire volume.

Backup II will display a warning indicating you will be overwriting/deleting any files currently on the Sider's destination volume. It will then ask you if you want to continue. Type Y to proceed with the restore operation.

Backup II will then ask you for the slot and drive that you will be restoring from. Type the appropriate numbers for your floppy drive. It will then ask for the destination device. You may either type the pathname for the volume, such as /HARD1, or you can type the letter "S" to be prompted for a slot and drive number to restore to.

You will be prompted if you want the names of the files to be listed on the screen only or on both the screen and printer. Type "S" for screen only or "P" for screen and printer. The restore process will then begin. Each file will be listed as it is restored and you will be prompted to insert each diskette in the backup set.

When the restore is completed, Backup II will display the following message:

OPERATION COMPLETE
PRESS SPACE TO CONTINUE, TO EXIT

> **NOTE:** If you have made any incremental backups since this full volume backup, be sure to restore each of these in the chronological order that they were made.

6.2.4 Restoring Files By Pathname

You may use the restore files by pathname option to restore specific files and directories to your Sider. If you have not done a complete volume backup, then you MUST use this option for restoring your files. You would also use this option to restore any incremental backups to the Sider.

One advantage this option offers over the volume restore is that it will not overwrite all files on the destination volume. If you choose to restore files to the original path on the hard disk volume, files with the same names as those being restored will be overwritten. If you restore files to a path on the hard disk that is different from where the files currently reside, then NO files on the Sider will be overwritten.

To Restore by Pathname, follow these steps:

Insert the first backup diskette, /BACKUP.VOLUME1, in your floppy disk drive.

Load the Backup II program. From the Main Menu, take option R to Restore Files. From the Restore Files menu, take option P to Restore by Pathname.

Backup II will then ask you for the slot and drive that you will be restoring from. Type the appropriate numbers for your floppy drive. It will then display the pathname for the backup diskette: /BACKUP.VOLUME1. At this point, you may either hit the key to restore all files or you may extend the pathname to a subdirectory. For example, if you added to the pathname so that it read: /BACKUP.VOLUME1/APPLEWORKS/= , Backup II would only restore files from the directory APPLEWORKS (along with any files in any subdirectories that exist within APPLEWORKS) to your Sider.

> **NOTE**: The wildcard "=" can be use to backup selected files begin with the same characters. In the above example, if you had entered a pathname of /BACKUP.VOLUME1/APPLEWORKS/WP= , all/only files starting with the letters "WP" would be restored.

Backup II will then ask for the destination device. You may then type the complete ProDOS pathname for the directory that you wish to restore files to. For example, type /HARD1/DATA to restore files to the subdirectory named DATA. Alternatively, can type the letter "S" to be prompted for a slot and drive number to restore to.

Backup II will then prompt you for the output for the file listing. If you want screen only, hit the key to select option S. If you want output to the screen and printer, type the letter P.

As Backup II transfers files, it will create the necessary subdirectories to contain the files. It will continue to prompt you for each backup diskette as it is needed.

If your specified From (source) pathname does not match any of the files on the backup volumes, the screen will display the message:

NO FILE FOUND

After the last volume has been restored, the following message will appear:

OPERATION COMPLETE
PRESS SPACE TO CONTINUE, TO EXIT

Press the ACE BAR to return to the Restore Files Menu. Press the key to return to the Backup II Main Menu.

6.2.5 List Files

Files copied by Backup II cannot be read through standard ProDOS utilities. Consequently, you must use Backup II to get a directory listing of what files are stored in the backup volumes.

To find out what files are in a set of backup diskettes, insert the first floppy: /BACKUP.VOLUME1 into your floppy drive. With Backup II already loaded, take option R from the Main Menu to go to the Restore Files menu.

From the Restore Files Menu, take option L to list files.

Backup II will now prompt you for the slot and drive number of the floppy disk drive containing the first backup volume. Proceed at this point and type the appropriate numbers. If you then type the key, the file listing will then be displayed to the Apple's display screen. If you instead type the letter P, the listing will also be printed out to your printer.

If the listing is too long to fit on a single screen, type the ACE BAR key to page through the additional screens. After viewing the last screen, type to then return to the Restore Files menu.

NOTES

7. APPLICATION INSTALLATION

To help you get started using the sider, this chapter offers information regarding installation of selected application programs that run under the operating systems you've installed on your Sider.

Additionally, the final section of this chapter offers instructions of adding new expansion cards or changing the expansion slots in which you placed existing expansion cards, including the Sider's host adapter card.

7.1 DOS 3.3 APPLICATIONS

A large number of applications that run under Apple DOS 3.3 are copy protected. As such, then cannot be transferred to the Sider. The Sider doesn't support copy-protected software.

Following are a few tests that you can perform to determine if the Sider will support your application. keep in mind, however, that even if the application won't run on the Sider, you can still run it on your Apple computer by choosing option [6] at the Sider's Main Menu screen, "Boot into Slot 6."

- If the Apple utility, "COPYA," doesn't copy the application diskette, the application won't run on the Sider.
- If the application is "hard-coded" for only slot 6, drives 1 and 2 won't run on the Sider.
- If the application doesn't support the volume option - that is, CATALOG S7,D1,V14 - it won't run on the Sider.
- If the application requires a special DOS - other than Diversi-DOS, David DOS, or Pronto-DOS which the Sider does support - it won't run on the Sider.

If you DOS 3.3 applications don't run on the Sider, there is yet another option. The manufacturers of most popular DOS 3.3 applications have written, or are writing, versions for the ProDOS operating system. Most of these applications are not copy-protected, so you can use them in the Sider's ProDOS partition.

7.2 ProDOS APPLEWORKS

Bring up the Sider's Main Menu screen, then press [4] to boot into the ProDOS partition.

At the ProDOS User's Disk menu, press [F] to access the Filer screen. Then press [F] again to access the File Commands screen.

Now press, [M] to access the "Make Directory" screen. When the system prompts you to enter a "PATHNAME," type

APPLEWORKS **[return]**

With the directory created, type

APPLEWORKS/DATA **[return]**

When the system completes the task, press [esc] to return to the File Commands screen.

Insert a working copy of the APPLEWORKS STARTUP diskette in floppy disk drive 1, and press [C] at the File Commands screen.

You will be prompted to enter a source "PATHNAME." Type

APPLEWORKS/= **[return]**

When the system prompts you to enter a "TO PATHNAME," type

APPLEWORKS/= **[return] [return]**

to copy the files to your Sider.

Now, replace the APPLEWORKS STARTUP diskette in floppy disk drive 1 with the APPLEWORKS PROGRAM diskette.

The cursor will automatically return to the source file "PATHNAME" prompt Type

APPLEWORKS/= **[return]**

At the "TO PATHNAME" prompt, type

APPLEWORKS/= **[return] [return]**

When the system indicates that it has completed the task, it will return to the "TO PATHNAME" prompt. Insert the APPLEWORKS Sample Data diskette in drive 1. Then type

```
SAMPLE.DATA/=                    [return]
```

When the "TO PATHNAME" prompt reappears, type

```
APPLEWORKS/DATA/=                [return] [return]
```

Then press [esc] TWICE to return to the ProDOS System Utilities screen. Press [Q] to access the Quite screen and then press [return] to exit to the ProDOS User's Disk screen.

This sequence of commands has created an APPLEWORKS directory on the Sider and has copied the program files to that directory. The following sequence of commands will attach a name by which you can easily access the APPLEWORKS program.

From the ProDOS User's Disk screen, press [B] to access Applesoft BASIC. At the Applesoft prompt, type:

```
] NEW                                    [return]
] 10 D$=CHR$(4)                          [return]
] 20 PRINT D$; "PREFIX APPLEWORKS"       [return]
] 30 PRINT D$; "-APLWORKS.SYSTEM"        [return]
] SAVE/HARD1/AW                          [return]
```

To access APPLEWORKS from then on, boot into ProDOS from the Sider's Main Menu screen. Then press [B] at the ProDOS User's Disk screen, type

```
-AW                              [return]
```

The system will run APPLEWORKS.

> **NOTE**: You can assign any name you want to the APPLEWORKS file; "-AW" isn't mandatory. However, you must make sure that the name you choose doesn't already exist under BASIC on the Sider. You'll "write over" any file of the same name when you enter this program.

To set up an orderly and efficient set of APPLEWORKS files on your Sider, refer to the chapter in your ProDOS User's manual

covering file names, directories and path names. This chapter provides an excellent explanation of disk space utilization.

Also refer to the APPLEWORKS Reference manual, "Appendix A", for more information regarding use of this application with a fixed disk.

7.3 ALS CP/M, VERSION 3.01C

CP/M 3.01C is Advanced Logic System's latest release of the CP/M Plus operating system for the ALS CP/M Card. This operating system runs under the ProDOS operating system, which means that both ProDOS and CP/M reside in the computer's memory.

The advantage of this design is that CP/M can use an ProDOS compatible storage device. However, to use CP/M 3.01C on the Sider, you must partition the fixed disk for the ProDOS operating system.

The ALS software is designed to look only at the first ProDOS volume on the fixed disk, so you should maximize the amount of storage allocated to the First ProDOS volume on the Sider.

The current ALS release, 3.01C2, requires a minimum allocation of 2 megabytes on volume 1. The previous release 3.01C, required a minimum of 5 megabytes. If you have version 3.01C1, contact ALS for an upgrade to the system.

Note that if you purchased your CP/M Card prior to 1984, you should verify with ALS that your card doesn't require a hardware upgrade to run with the new 3.01C release.

With the current 3.01C2 release, the Sider's host adapter card can be installed in any expansion slot. First Class Peripherals recommends slot 7 so that you can automatically boot the Sider when you apply power to your system.

If you have release 3.01C1, you must insert the Sider's host adapter card in slot 5.

After you've formatted the Sider and have installed ProDOS in /HARD1, make working copies of your ALS /BOOT diskette

and the /CPMBOOT disk, which is on the opposite side of the flippy diskette from /BOOT. Then insert the working copy of the /BOOT diskette in floppy disk drive 1 and choose option [6] at the Sider's Main Menu screen. The system will boot the /BOOT diskette.

The system will inform you that CP/M has not been installed, and will ask you if you would like to install CP/M at this time. Press [Y] [return].

The system will then prompt you to insert the install diskette. Insert the working copy of the /CPMBOOT disk in floppy disk drive 1 and press [return].

The system will create a directory in the root directory of /HARD1, the first ProDOS volume on the Sider. Next, the system will ask you to specify a path name to your CP/M directory so it can copy files from /CPMBOOT disk to the directory.

At the "TO PATHNAME" prompt type

/HARD1/CPM **[return]**

The system will then ask you for the name of the file that you want to run. Type

CPM3.SYSTEM **[return]**

This program will boot the CP/M operating system into memory. After several seconds, the ALS HELLO program will execute and the operating system will be installed and running.

To boot ALS CP/M from the Sider, choose option [4] from the Sider's Main Menu to load the ProDOS operating system.

At the ProDOS User's Disk Main Menu, choose option [B] to go into BASIC. Now you must change the ProDOS path name to the CP/M subdirectory. Type

```
] NEW                                    [return]
] 10 D$=CHR$(4)                          [return]
] 20 PRINT D$;"PREFIX/HARD1/CPM"         [return]
] 30 PRINT D$;"-CPM3.SYSTEM"             [return]
] SAVE/HARD1/ALS                         [return]
```

When you've completed this program, you can boot ALS CP/M by entering the ProDOS partition, entering BASIC and running this basic program. Type

```
]-ALS                                    [return]
```

7.4 CP/M WORDSTAR

Insert a working copy of the Wordstar master diskette into floppy drive 1. At the Sider's Main Menu screen, choose option [2] to boot into the CP/M partition on the Sider. At "A" prompt, type

```
PIP A:=E:WS*.*[V]                        [return]
```

This command will copy the WordStar files from the floppy diskette to the first CP/M volume on the Sider.

Use the second CP/M volume for your WordStar test files. From then on, when you want to invoke WordStar, "log into" CP/M volume B: and at the "B" prompt, type

```
A:WS(FILENAME.TXT)                       [return]
```

> **NOTE:** "(FILENAME.TXT)" in this instance represents the specific file that you want to pull from storage. This command executes WordStar and the designated text file.

When you've finished working on the text file, you'll save in the CP/M volume B again.

7.5 CP/M DBASE II

Insert a working copy of the DBase II diskette into floppy disk drive 1. At the Sider's Main Menu screen, press [2] to boot into the CP/M partition on the sider. At the "A" prompt, type

```
PIP B:=E:*.*[V]                          [return]
```

This command will copy the DBase II files from the floppy diskette to the second CP/M volume on the Sider.

Conserve disk space by placing all of your small files - that is, command files - in sider Volumes of 2 megabytes or less, which contain smaller allocation units: 2 kilobytes.

Next, replace the DBase II diskette in floppy disk drive 1 with your data base diskette. Type

PIP C:=E:*.*[V] **[return]**

This command copies your data base volume from the floppy diskette to the third CP/M volume on the Sider.

Also, conserve disk space by placing your data base files in larger Sider volumes - that is, those over 2 megabytes in size. These volumes contain larger allocation units, between 4 kilobytes and 8 kilobytes.

To invoke DBase II, log into volume "B:" of the CP/M partition. then type

DBASE **[return]**

7.5.1 Adding Cards Or Changing Host Slots

When you change the configuration of your system by adding an expansion card or changing the expansion slot in which you've placed the Sider's host adapter card, you must also recreate the DOS 3.3 and CP/M boot tracks on the Sider to reflect the new configuration. ProDOS and Pascal don't require the changes.

The following sections offer instructions for changing the boot tracks on your Sider. Note that these sections are presented in the sequence that you must follow to properly reconfigure your system; if you have installed CP/M on your Sider, you must change the DOS 3.3 boot track before changing the CP/M boot track.

7.6 DOS 3.3

There are two scenarios in which you must create a new DOS 3.3 boot track: when you are having trouble booting to the Sider; and when you move the Sider's host adapter card to a new expansion slot.

If you're moving the Sider's host adapter card to another expansion slot, follow the instructions below for accessing the Create New DOS Boot Track utility.

1. Select option [5] from the Sider's Main Menu to enter the Support Utilities.

2. Select sub-option [7] from the Support Utilities to run the Create New DOS Boot Track.

3. When prompted, enter the slot number of the slot YOU ARE GOING TO MOVE the Sider host adapter to.

4. Exit the program, park the heads of the Sider, and power off the computer and Sider.

5. Move the host adapter to the new slot and turn the power on to the system.

7.7 MICROSOFT SOFTCARD CP/M FAMILY

After you've changed the DOS boot track, place a working copy of the SoftCard System Diskette in floppy disk drive 1.

At the Sider's Main Menu screen, press [6] to boot onto the System Diskette. After the system boots, replace the System Diskette with a working copy of the Siderware Support Utilities for CP/M diskette.

Next, refer to the "Installing Microsoft SoftCard" section of this guide's "Operating System Installation" chapter. Follow the instructions presented in that section, as if you were installing the SoftCard for the first time. When you complete those instructions, you're ready for your next operation.

Applied Engineering CP/AM 5.1

Refer to the Applied Engineering manual for instructions.

7.8 PCPI CP/M

After you've changed the DOS boot track, insert the modified copy of the PCPI System Diskette into floppy disk drive 1. (During the original installation of PCPI's APPLI-CARD, you altered a working copy of the System Diskette. This is the diskette that you need for this operation.)

From the Sider's Main Menu screen, press [6] to boot the diskette. After the system boots, replace the System Diskette with the Siderware Support Utilities for CP/M diskette.

At the "A" prompt, type

E:PBOOT **[return] [return]**

Now you're ready for the next operation.

NOTES

8. MAINTENANCE AND TROUBLE-SHOOTING

Because the Sider requires so little ongoing maintenance, this chapter focuses primarily on trouble-shooting; that is, what you should do if the sider doesn't function properly.

8.1 TROUBLE-SHOOTING TIPS

If you receive an error message during normal operation, or worse, the Sider simply doesn't work, follow these steps in the order that they are presented.

Step 1

If you've received an error message, jot down on a sheet of paper your actions leading up to the error message and the contents of the message, before you do anything else to the system.

Make sure your Owner's Log is completed, particularly if you've already partitioned your Sider. Make sure the partition structures are recorded in the Owner's Log found located later in this section.

Step 2

Check the following:

Host Adapter Card

- Ribbon Cable firmly attached to Host Adapter.
- Brown or red stripe of ribbon cable connected to top of card.
- Host Adapter firmly seating into an expansion suit.
- (IIgs) The control panel set to "Scan" slots or to boot slot "7".
- Jumper in locations W1 and W2 in correct positioning (See the hardwrare appendix.)

I/O Cable

- I/O Cable properly mounted to the rear of the Apple and the Sider.

- Thumbscrews securely tightened?
- I/O Cable not installed in a printer or built SCSI connector.

Terminator Plug

- Is the terminator plug securely attached to the Sider?

Drive Addressing

- Is the Sider properly addressed? See HARDWARE INSTALLATION.
- If addressing in a Daisy Chaining environment, see DAISY CHAINING SIDERS.
- Jumpers seated properly.

Power

- Power cord plugged into a 110-Volt electrical outlet and to the Sider?
- Apple computer power turned on?
- Sider turned on?
- Are the monitor's video cable and power cord securely attached?

Software

- Were the diskettes placed in the appropriate drives and were the drive doors closed?
- Did you specify the correct drive to access the software?
- Did you try to transfer a copy-protected program to the Sider? These programs do not support hard drives.
- If you're having a problem installing an operating system or application program, did you carefully read the installation manuals which came with the Operating Systems and the sections of this manual addressing their installation?

Step 3

If you've checked each item in the previous sections and you still receive an error message, bring up the Sider's Main Menu screen - either by powering down the Sider and then reapplying power, or by pressing [control] [reset] simultaneously - and choose option [5]. The Support Utilities Menu screen will appear.

Choose option [7] to execute the Make DOS Boot Track. Record the results in the "Diagnostics Results" section, which follows this section.

If your Sider simply doesn't function - that is, you can't even invoke the Sider's Main Menu screen - boot your DOS 3.3 SYSTEM MASTER floppy diskette from floppy disk drive 1. To do this:

If no cursor appears:

- Press the control and reset keys at the same time to get the Applesoft prompt.
- At the prompt type: PR#6 and then press Return.
- If you get an asterisk "*":
- At the asterisk type: C600G and then press Return.

> **NOTE:** If you do not have a DOS 3.3 bootable diskette, you can boot your system with the SiderWare Installation Diskette. Use the above procedure to boot the diskette. When Siderware boots, proceed to the point were Integer Basic has loaded. Press the Control and Reset keys to exit the program and proceed as normal.

When booted, replace the DOS 3.3 diskette in floppy drive 1 with a working copy of the Siderware Support Utilities for DOS 3.3 diskette. Type:

RUN MAKE BOOT TRACK,S6,D1 [return]

The system will perform the diagnostics routine as well as any maintenance needed to the main boot area of the drive. Record any error messages in the following section.

Try also, from the DOS prompt type:

RUN DIAGNOSTICS,S6,D1 [return]

If you are having data problems in a particular operating system, you should run that operating systems data verification routine, if available.

For example: In ProDOS, in the FILER menu is a option to VERIFY a volume. This utility will check the integrity of the data area of a particular volume. If it finds errors, you should

backup as much of the volume as possible and then use the Sider Main Menu's Support Utilities to re-initialize that partition. If that does not rectify the problem, you will have to backup the entire drive and reformat the Sider.

8.2 ERROR CODE ANALYSIS

The SiderWare program can return a great deal of information about the hardware through the use of ERROR CODES. These error codes are generated by the program analyzing various communication channels to determine at what point in the channels the communication failed.

The following section is provided as a brief explanation of the common error code and some possible action you can take to resolve them.

If you have more than one Sider product, you can further isolate errors by substituting cards and cables from the second unit to see if the problem can be isolated to a component.

BAD TRACK ZERO ..... Key 3 Error
CONTROLLER SELECT ERROR GOT 20 SHOULD HAVE E8 ..... Key 6 Error
DATA REGISTER IS BAD GOT xx SHOULD HAVE xx ..... Key 7 Error
DRIVE NOT READY IN TIME ..... Key 2 Error
HOST ADAPTER IS NOT INSTALLED ..... Key 7 Error
I/O ERROR RAM TEST FAILED ..... Key 7 Error
I/O ERROR SENSE BYTES = ... 00 00 00 01 ..... Key 1 Error
I/O ERROR = ... 04 00 00 01 ..... Key 2 Error
I/O ERROR = ... 06 00 00 01 ..... Key 3 Error
I/O ERROR SENSE BYTES = ... 0A ..... Key 4 Error
I/O ERROR = ... 84 00 00 01 ..... Key 2 Error
I/O ERROR = ... 86 00 00 01 ..... Key 3 Error
I/O ERROR SENSE BYTES = ... 8A ..... Key 4 Error
I/O ERROR SENSE BYTES = ... 8F 00 00 01 ..... Key 4 Error
I/O ERROR SENSE BYTES = ... 90 00 00 01 ..... Key 5 Error
I/O ERROR SENSE BYTES = ... 91 00 00 01 ..... Key 5 Error
I/O ERROR SENSE BYTES = ... 92 00 00 01 ..... Key 5 Error
I/O ERROR SENSE BYTES = ... 94 00 00 01 ..... Key 5 Error
I/O ERROR SENSE BYTES = ... 95 00 00 01 ..... Key 5 Error
I/O ERROR SENSE BYTES = ... A1 ..... Key 8 Error
I/O ERROR SENSE BYTES NOT AVAILABLE ERROR READING PARM
..... BLOCK ..... Key 6 Error
I/O ERROR SENSE BYTES NOT AVAILABLE RAM TEST FAILED Key 6 Error
INITIAL STATUS IS WRONG GOT xx SHOULD HAVE xx ..... Key 7 Error
NON MEDIA ERROR = ... 00 00 00 01 ..... Key 1 Error
NON MEDIA ERROR =..... 86 ..... Key 3 Error
NON MEDIA ERROR =..... 06 ..... Key 3 Error
NON MEDIA ERROR = ... 8A ..... Key 4 Error
NON MEDIA ERROR =..... 0A ..... Key 4 Error
ROM CHECK SUM IS WRONG GOT xx SHOULD BE xx ..... Key 7 Error

KEY 1 ERRORS

These errors normally indicate a communication problem with the controller. Double check all of the cable connections as well as the seating of the host adapter and terminators. If your adjustments fail, contact your dealers service department for further help.

KEY 2 ERRORS

These errors indicate the hard drive is not coming up to full rotational speed or is not spinning at all. This condition could be caused by:

- Not turning the hard drive on.
- The power supply's internal fuse or other component has failed.
- The power supply is delivering less than the full voltage needed.
- The drive's motor is dysfunctional.
- The drive's speed sensor has failed.
- In some cases, a host adapter failure can cause this error.

KEY 3 ERRORS

These errors are generally caused by defects on the recording media of the hard drive. If the formatting and reinstallation processes are not able to electronically manage these defects you will most likely need to have the drive repaired by an authorized service center.

KEY 4 ERRORS

These errors indicate that the hard drive's ID field is damaged. There are two things you might try. First try recreating the DOS boot track. You can do this by running the support utilities program from the Main Menu or from the Siderware Support utilities diskette. If that fails to over come the error you should try reformatting the hard drive. If the drive persists to return the error you will need to contact you dealers service center.

KEY 5 ERRORS

These errors normally will occur during a formatting or re-formatting. You should double check all the connections, card, cables, and terminator. Try allowing the drive to warm up, (turn it on and let it run 30 minutes) before trying a second format. If all fails you will need to contact your dealer service center for further help.

KEY 6 ERRORS

These are a general class of error codes. Refer to the Trouble Shooting section of this manual. These errors can indicate anything from a failed hard drive to a jumper miss configured. If a thorough check out of the equipment fails to correct the problem, contact your service center for further help.

KEY 7 ERRORS

These errors generally indicate signal communication problems in the area of the host adapter. Check the connector for proper orientation (i.e. pin one of cables are mated with pin one of board connectors), for firm connections and for the card being in the proper slot.

KEY 8 ERRORS

This error is common during setup and first time installation. It normally indicates that when prompted for capacity of the drive you intended to format, you entered a number smaller than the actual size. (i.e. you selected 10 mb for 20 mb or 20 mb for 40 mb). To over come the error simple rerun the install program.

8.3 DIAGNOSTICS RESULTS

Testing ROM

Error Message or Number: _____

Testing Host Adapter Card

Error Message or Number: _____

Testing Controller

Error Message or Number: _____

Formatting (if applicable)

Error Message or Number: _____

_____

8.4 OWNER'S LOG

Please record the following information and have it ready before your call your dealer. This information may aid him in diagnosing the problem.

Sider Model/Part Number (i.e. 106034-24):
9720+1 (D2) 106034-24
(Sider number stamped on bottom of the subsystem.)

Release Date 12/1/86

Sider serial no:
#908 34569
(stamped on the bottom of the subsystem)

Date manufactured:
None
(stamped on the bottom of the subsystem)

Type of computer and revision:
IIe

Type of operating systems installed:
(list version numbers and release dates)

DOS:

YES[X] NO[ ] VER. 3.3

CP/M:

YES[ ] NO[X] VER.

Pascal:

YES[ ] NO[X] VER.

ProDOS:

YES[X] NO[ ] VER.

Other Add Ons:

(1)

(2)

(3)

Partition Structure

DOS 3.3

Number of Small Volumes: 1

Number of Large Volumes: 0

Total DOS Volumes: 1

CP/M

CP/M Volume A start: 50

size: 2

CP/M Volume B start: 53

size: 2

CP/M Volume C start: 56

size: 2

CP/M Volume D start: 59

size: 2

ProDOS

Drive 1 start: 64

size: 18752

Drive 2 start: 1236

size: 18768

Pascal

Pascal Unit #9 start: 2411

size: 48

Pascal Unit #10 start: 2414

size: 48

Pascal Unit #11 start: 2417

size: 48

Pascal Unit #12 start: 2420

size: 48

Hardware Configuration

Slot 0 - Card/Function: _____

Manufacturer: _____

Slot 1 - Card/Function: _____

Manufacturer: _____

Slot 2 - Card/Function: _____

Manufacturer: _____

Slot 3 - Card/Function: _____

Manufacturer: _____

Slot 4 - Card/Function: _____

Manufacturer: _____

Slot 5 - Card/Function: _____

Manufacturer: _____

Slot 6 - Card/Function: _____

Manufacturer: _____

Slot 7 - Card/Function: _____

Manufacturer: _____

9. DAISY-CHAINING SIDERS

This chapter supplements the installation and operation sections of this guide, providing you with the information you need to successfully daisy-chain your Siders. Daisy-chaining is attaching two Siders together to expand your system's storage capabilities.

9.1 TO DAISY CHAIN

- Attach First Sider to Computer.
- Remove terminator from rear of first Sider.
- Attach second Sider's I/O cable to the open connector on the rear of the first Sider.
- Attach terminator to the open connector on the second connector.
- Firmly tighten all thumb screws.

> **NOTE:** If you are daisy-chaining your Sider D2 with an older Sider product which has a 37 pin cable and connecters, First Class Peripherals makes available a 37 pin to 25 pin cable through its dealers. PN# 107231

Attach the power cords to both Siders and plug them into your surge suppressor power strip. Your daisy-chained Siders are now installed.

9.1.1 Auto Installation For Daisy-chaining

Proceed as you did when you ran the utilities on the firs Sider, repeat installation procedure, except this time when the system asks you "Is this Subsystem 1 or 2," press [2].

Redman
615-478-5720

9.2 DAISY-CHAIN OPERATING SYSTEMS

9.2.1 ProDOS (8 bit Versions only)

To inform ProDOS of the second Sider, boot into the ProDOS partition on the first Sider from the Sider's Main Menu screen. Then exit the utility.

At the Applesoft prompt, type

-/HARD1/P.SLOT **[return]**

The system will prompt you to enter an expansion slot number. At the prompt, enter an empty slot number - that is, a slot that isn't occupied by an expansion card.

ProDOS can now access the second Sider. To access the four available ProDOS volumes on the two Siders, use prefixes "/HARD1/" through 'HARD4". The /HARD1/ and /HARD2/ volumes are on the Sider that's attached directly to your computer.

The /HARD3/ and /HARD4/ volumes are on the second Sider. You can access them by executing phantom slot (whichever empty slot you've designated), drives 1 and 2 respectively.

NOTE: Do not phantom slot into Slot 3!

ProDOS 16 will only recognize 2 volumes. If daisy-chaining create only one volume on each drive. This may mean you will have to re-initialize your first Sider.

9.2.2 CP/M

If you install CP/M on both Siders in a daisy-chain configuration, you have as many as eight volumes available for use: four volumes on each Sider. But because only four of those eight volumes can be on line at any given time, you must designate which four will be "ON" and which will be "OFF" each time you access the operating system.

Refer to the "Mount/Dismount CP/M Volumes" section of "Support Utilities" for instructions regarding the status of the eight available CP/M volumes in a daisy-chain configuration.

9.2.3 Pascal

Pascal also features eight available volumes in daisy-chain configuration. For instructions regarding use of the Pascal operating system in that environment, refer to the "Change Pascal Unit Numbers" section of "Support Utilities."

NOTES

10. SPECIFICATIONS

10.1 TECHNICAL INFORMATION

10.1.1 Sider Specifications

This section contains specifications for the Sider, including dimensions, subsystem requirements and fixed disk characteristics.

Dimensions and Requirements

Following are the physical dimensions and power requirements of the Sider.

Height	7.5 inches
Width	3.4 inches
Depth	16.0 inches
Weight	11.0 pounds
Source	110-126 vlts (factory config)
Line Frequency	50/60 (+/-2%)
Power Consumption	40 watts

Subsystem Characteristics

The following section provides additional specification for the Sider fixed disk subsystem.

Sider D2

Formatted Capacity	20 Mbytes
Sectors per track	32
Bytes per Sector	256
Cylinders	612
Heads	4
Average Access Time	65 msec.
Average Latency	8.33 msec.
Recording Format	MFM

10.2 IMPORTANT INFORMATION

> **NOTE:** This product has been low level formatted at the factory with 256 bytes per sector, 32 sectors per track with an interleave of 17, for optimum compatibility with the Apple II family of computers.

Any attempts to reformat by use of unauthorized software, to other than 256 bytes may overwrite certain critical identification data on the drive which will render the product unusable, requiring return to the factory for reformatting. Returned products which the customer has rendered unusable by the use of unauthorized software and is so identified by the factory upon return, will be assessed an "out-of-warranty" repair charge for factory reformatting.

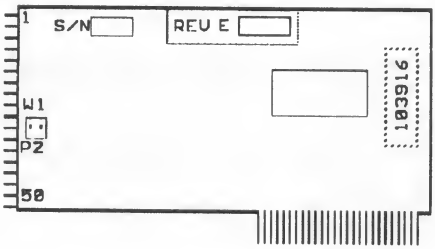
11. HARDWARE APPENDIX

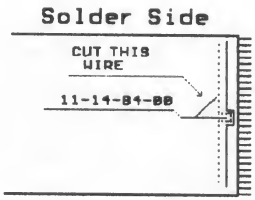
11.1 HOST ADAPTER CONFIGURATION

The new Siders have been enhanced internally to be more versatile and use less power from the computer.. Enhanced Siders have a warning label on the rear panel. Internally, these Siders provide their own 5 volts power to the terminator network. Previous Sider derived this voltage from the Apple's mother board through the host adapter.. If there is no warning label you should follow the setup instructions for the non enhanced Sider drives.

Below are illustrations of various Sider host adapters, locate yours and set the option jumpers as indicated. Many versions other the Apple host adapter have been manufactured. Some may have what is called a trace on the card in place of a jumper. If a board has a trace connecting the circuit, it should be remove or added as indicated in the following diagrams.

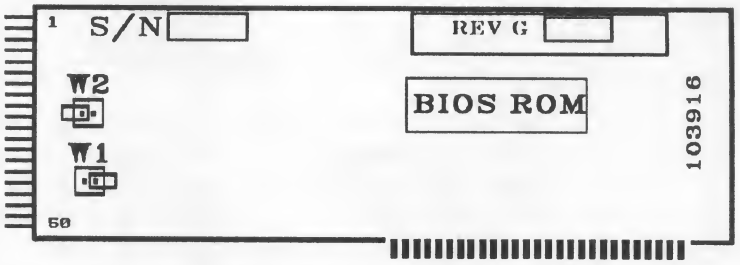
If you have a host adapter 103916 revision E setup as follows:





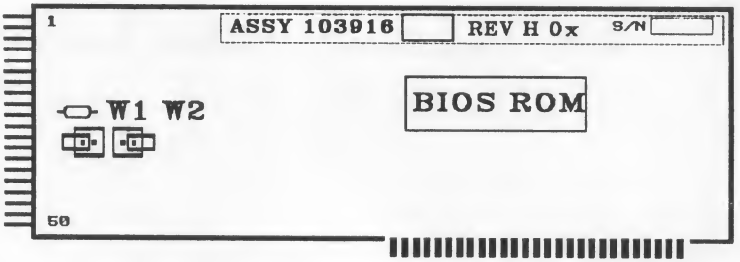
Sider with no warning label..... Board should not be modified.
Sider with warning label..... Cut the wire shown above.
Sider with no label daisy chained to Sider with warning label..... Cut the wire shown above.

If you have a host adapter 103916 revision G, H00 OR HO1 setup as follows:



Sider with no warning label..... Jumpers should be on W1 and W2.
Sider with warning label..... Both W1 and W2 jumper must be off.
Sider with no label daisy chained
to Sider with warning label..... Both W1 and W2 jumper must be off.

If you have a host adapter 103916 revision H03 OR HO4 setup as follows:



Sider with no warning label..... Jumpers should be on W1 and W2.
Sider with warning label..... Both W1 and W2 jumper must be off.
Sider with no label daisy chained
to Sider with warning label..... Both W1 and W2 jumper must be off.

11.1.1 Important Information

If you use a host adapter set for the wrong revision of the drive, many problems can occur:

Example 1:

If a host adapter is being used with a Sider without a warning label and its' jumpers are set for a Sider with a warning label the Siders terminator will not work and the drive normally will not work properly in the computer.

Example 2:

If a host adapter is being used with a Sider which has the warning label but its jumpers are set for a Sider without a warning label, 5 volts of power will travel from the Sider to the Apple's mother board. This may, cause problems with other boards in the system, cause the Apple to appear "ON" even with the power off and could cause computer damage if a card were pulled out.

Example 3:

If you are daisy chaining a Sider product which have a warning label to one which does not, the host adapter should always be set for as if both drives have warning labels.

If you are Daisy Chaining products other than the Sider 40mg drives, an old drive Sider with a new one the new one needs to be on anytime you are using either drive.

11.2 FCC COMPLIANCE and WARRANTY

FIRST CLASS PERIPHERALS provides a shielded Data Cable (and Host adapter if required) that comply with the FCC Class B computing regulations. Use of a non-shielded Data Cable may result in RF radiation exceeding limits. It is possible, when not following these explicit instructions, to install the Sider so that it isn't in compliance with FCC Class B computing regulations.

This equipment generates and uses radio frequency energy and if it is not installed and used in strict accordance with the manufacturer's instructions, may cause interference with radio and television reception. All Siders have been type-tested and found to comply with the limits of Class B computing device in accordance with the specifications in Subpart J of part 15 of FCC rules, which are which are designed to provide reasonable protection against such interference in a residential installation. However, there are no guarantees that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, you are encouraged to try to correct the interference by one or more of the following -- reorient the receiving antenna; move the equipment away from the receiver; plug the equipment into a different outlet so that the equipment and receiver are on different branch circuits.

If necessary, you should consult with an Authorized FIRST CLASS PERIPHERALS dealer or an experienced radio/ television technician for additional suggestions. You may find the following booklet prepared by the FCC helpful:

'How To Identify And Resolve Radio-TV Interference Problems'

Available from:
U.S. Government Printing Office, Washington D.C., 20403:
Stock No. 004-000-00345-4

LIMITED WARRANTY POLICY

FIRST CLASS PERIPHERALS warrants all of its products, including spare parts sold by FIRST CLASS PERIPHERALS, to be free from defects in material and workmanship for a period of one year from the date of delivery. This warranty is made to the original purchaser, and only the original purchaser may make any claim under the warranty. (Original purchaser is defined as the first person to install and place into use any FIRST CLASS PERIPHERALS product. Typically this person would be the end-user). No other party shall have any rights under this warranty shall be the repair or replacement of the defective product as described herein. Title to the product remains at all time in the purchaser.

FIRST CLASS PERIPHERALS disclaims all other representations and warranties, including but not limited to, any implied warranty of merchantability or fitness for a particular purpose. FIRST CLASS PERIPHERALS shall not be liable for any special, indirect, incidental or consequential damages, lost profits, costs or expenses, except as set forth in this policy, which may be modified or amended only by written contract.

IN-WARRANTY REPAIR

FIRST CLASS PERIPHERALS will repair at its factory or repair center, any product that within the warranty period is returned to FIRST CLASS PERIPHERALS and found to be defective in proper usage.

Warranty action is initiated by customer notification to FIRST CLASS PERIPHERALS of a product failure within the warranty period. In the rare event a failure should occur, the original customer must obtain a Returned Goods Authorization number (RGA) from FIRST CLASS PERIPHERALS and return the defective product in its original shipping carton or equivalent, making sure to include all accessories and proof of purchase, to the designated factory or repair center. One-way transportation charges are at the customer's expense. FIRST CLASS PERIPHERALS will return repaired or replaced product by UPS Ground service at the expense of FIRST CLASS PERIPHERALS. Requests for faster shipping service may be obtained provided the customer makes prior arrangements with the FIRST CLASS PERIPHERALS sales department; such service is at the expense of the customer.

FIRST CLASS PERIPHERALS reserves the right to reject any warranty claim on any products that have been the subject of abuse, misuse, unauthorized repair, alteration, improper return handling or causes external to the product, including but not limited to: improper power application, improper environmental exposure or other improper use of the product.

FC0139.WAR/1FIRST CLASS PERIPHERALS, at its option, may replace the returned product with a new or refurbished unit of the same type and model as defined by the applicable specifications or published data sheet.

FIRST CLASS PERIPHERALS will return to original purchaser repaired or defective product within 3 working days of receipt by FIRST CLASS PERIPHERALS PROVIDED: 1) a RETURNED GOODS AUTHORIZATION NUMBER (RGA) has been obtained from FIRST CLASS PERIPHERALS; 2) the RGA number is written in large (3 inch) letters on the original shipping container; 3) all accessories are included and 4) all the aforementioned instructions have been met.

FIRST CLASS PERIPHERALS includes in its Limited Warranty Policy, the right to update in accordance with any field change order which FIRST CLASS PERIPHERALS determines is mandatory for reasons of product safety. All other field changes, revisions or updates not deemed mandatory by FIRST CLASS PERIPHERALS may be implemented at the discretion of FIRST CLASS PERIPHERALS or as required by contract.

OUT-OF-WARRANTY REPAIR

FIRST CLASS PERIPHERALS will provide repair or replacement services for all products manufactured by or for FIRST CLASS PERIPHERALS and sold by FIRST CLASS PERIPHERALS, for a period of 3 years following date of original purchase unless product has been discontinued from FIRST CLASS PERIPHERALS active product list. The customer is obligated for cost of repair or replacement and its updated amendments, including freight and handling charges both ways.

To obtain OUT-OF-WARRANTY REPAIR SERVICE, the customer must: 1) obtain a RETURNED GOODS AUTHORIZA-

TION NUMBER (RGA) from FIRST CLASS PERIPHERALS; 2) include the authorization number on the outside of the original shipping container or equivalent in large (3 inch) letters, and 3) include all accessories required for proper repair. In the rare event all required accessories are not included, FIRST CLASS PERIPHERALS will repair or replace only those parts which were received.

REPAIR WARRANTY

FIRST CLASS PERIPHERALS warrants any out of warranty product repaired in its factory or repair center to be free from defects in material and workmanship for a period of 90 days from the date of return delivery.

For additional sales ore repair information contact:

FIRST CLASS PERIPHERALS
3579 Hwy. 50 East
Carson City, Nevada 89701

NOTES

12. GLOSSARY OF TERMS

Alternate Track: A Track or area of the fixed disk used for reassigning information form a defective track.

APPLI-CARD: An expansion card that supports the CP/M operating system, produced by Personal Computer Products, Inc. (PCPI)

Application Software: Computer programs that perform problem-solving tasks such as accounting or word processing.

Back-up: A copy of a primary data file or program to a secondary medium for safe storage.

Bit: The smallest unit of information a computer can store, represented by the digits 0 and 1.

Boot: Beginning with a permanently stored program in read only memory (ROM), the progressive loading of computer programs that perform self-diagnostics and search for other utility, operating system and application programs during start-up. With these programs, the computer "pulls itself up by the bootstraps" each time you apply power to it, or reset it while its operating.

Byte: A basic unit of information within a computer's memory, comprising eight bits and any value from 0 to 255. A byte represents a single character, such as a letter, number or punctuation mark.

Catalog: See "Directory."

Configuration: The combination of computer hardware devices and software programs that compose a computer system including computer, monitor, disk drives, printer and other peripheral devices.

Copy: To reproduce a program or data from one storage medium to another medium without altering the original information.

CP/M: Acronym for Control Program for Microcomputers. A Commonly used disk operating system.

Cursor: A character, usually a blinking line or box on a computer screen, that indicates where the next character will be entered, replaced or deleted.

Cylinder: Data on a fixed disk are recorded in circular patterns called tracks, which are divided into sectors. Usually several tracks - from two to eight, depending on drive type, for example - are in effect "stacked" one above the other. Such a "stack of tracks" is termed a cylinder.

Daisy-Chain: Two Siders connected in a series to a computer, doubling the system's total fixed disk storage capacity.

Default: A predetermined value or option used by the computer system when no other information has been specified.

Destination Slot: The expansion slot inside a computer containing the expansion card to which or through which data is copied, transferred or altered.

Detailing: The process of adjusting the size of the volumes in an operating system partition.

Device Drivers: A device or complete set of instructions that controls communication between an operating system and peripheral device.

Diagnostics: A program that identifies and diagnoses errors and defects in the computer's micro-circuitry or on the fixed disk.

Directory: A file that lists the name of each file and information the computer uses to trace the file's physical location on the diskette and its current status. Called a catalog in DOS.

Controller Card: A printed circuit card that connects one or two disk drives to a computer and controls their operation.

Disk Drive: A device that writes information onto, and reads information form the surface of magnetic disk storage media.

Diskette: A flexible, plastic disk coated with a magnetic substance on both sides. Data is stored magnetically on the disk's surface. The flexibility of the disk accounts for its name, "floppy disk."

DOS: Acronym for Disk Operating System. The program that controls communication between the computer and one or more disk drives for data entry, storage and retrieval.

Expansion Card: A printed circuit card that enhances the computer's capabilities through added memory, communication to a peripheral device, storage of a designated computer program, or all of the above.

Expansion Slot: A numbered slot insider the computer in which an expansion card is installed to enhance the capabilities of the computer.

File: A collection of information recorded as a unit on a storage medium.

File Name: A name under which a file is stored.

Fixed Disk: In the microcomputer world, this term is synonymous with "Winchester disk drive" or "hard disk drive." It refers to a physical drive whose medium is not removable. Because the medium is not removable, it must be backed up periodically to another medium which is removable, such as floppy diskette.

Flippy Diskette: A two-sided diskette that must be removed from the disk drive and "flipped" so the computer can read the opposite side.

Format: The manner in which data is arranged on a disk storage medium. The format process erases all data stored on the medium during this process and prepares the medium to receive new data.

Host Adapter Card: First Class Peripherals' expansion card that interfaces between the computer and the Sider.

I/O: Acronym for Input/Output. The transfer of information into and out of a computer.

I/O Cable: The communication link between a computer system and peripheral device.

Initialize: Following the physical format of a disk storage medium, the computer initialize, or records, the directory, partition and volume parameters at strategic points on the medium.

K: Acronym for kilobytes, 1,024 bytes.

Logical Drive: Characteristics created with software that make more efficient use of the physical drive. The computer, in effect, communicates with multiple fixed disks rather than just one.

Medium: A material and an associated technique for recording information. The most common media are floppy disks, fixed disks and tape in various forms.

Megabyte: 1,048,576 bytes.

Memory: The area of the computer that stores data.

Operating System: A group of computer programs that direct the operations of a computer system, particularly relating to disk drives, data storage and peripheral devices.

Partition: A Set of cylinders on a physical drive, usually a fixed disk drive. The cylinder set defines a physical region on the fixed disk drive that may contain one logical drive.

Pascal: A high-level disk operating system produced by Apple Computer, Inc.

Path Name: The list of names leading from a root directory to a subdirectory, or from a source file to a destination file.

Peripheral Device: Equipment externally connected to a computer system; e.g., the Sider.

Physical Drive: The mechanical device that contains rotating disks with a magnetic recording medium; a fixed disk drive is a physical drive, sometimes referred to as a "spindle." One or more logical drives may reside on one physical drive.

Program: A Sequence of commands that instruct a computer or its peripheral devices to perform a task.

Prompt: A character or set of characters, produced by an operating system or application program, signifying the space in which a command must be entered, so the computer can perform a specific task.

Root Directory: The ProDOS data structure on a logical drive in which the name and attributes of files and subdirectories one level down from the root are recorded. The name of the root directory itself is the back slash symbol (/). The root directory data structure is recorded on the logical drive and allows the operating system to locate files.

Screen: The illuminated viewing surface of a monitor; or the visual representation of data on that viewing surface.

Sector: A section of a track on a disk storage device that divides the data storage area into smaller, more manageable units: 256 bytes.

Sparing: The search for and circumvention of defects on a fixed disk's surface during the format sequence.

Subdirectory: A secondary ProDOS file that contains a list of additional subdirectories or file names and their attributes. A major component of ProDOS' tree-structured file system.

Terminator Plug: The device that terminates the communication stream from the computer to the Sider. It is always attached to the last sider in a daisy-chain configuration.

Track: Circular pattern on a fixed disk or floppy diskette, on which data is magnetically recorded and retrieved, equaling 32 sectors.

Tree-Structured Directory: In ProDOS, an efficient file storage method. Graphically resembling a "family tree," the tree-structure begins with a root directory that contains a listing of subdirectory titles. The subdirectories, in turn, contain listings of other subdirectories of rile names. The commands that lead the computer from the root directory through the subdirectories to a specific file are called path names.

Unit: The term by which the Pascal operating system identifies floppy disk drives and the volumes within Pascal partition on the Sider.

Utility: A utility is a computer program that supports operating systems and application programs, helping communicate with or control a given device in the configuration.

Volume: Volume represents two concepts: A physical drive's total available disk space is referred to as volume; also, subdivided areas of logical drive, or partition, are referred to as volumes (except under Pascal, which calls them "units").

Wildcard: A character represented by the equal sign (=), that specifies file names with identical prefixes. During the copy function, that wildcard designates that all files with the specific prefix in a given volume will be copied.

FIRST CLASS

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